

# Migrant fishers and fishing in the Western Indian Ocean: Socio-economic dynamics and implications for management



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Low tide at Shimoni, Kenya (Photo: B Crona)

## 1. Introduction

Coastal marine ecosystems in the WIO region are under threat due to various factors, including climatic change, destructive fishing practices, sand-mining, and pollution. Despite this, marine resources continue to make an important contribution to coastal livelihoods (e.g. GoT 2001) and fishing remains one of the most important elements of these livelihoods. However, decline in fisheries catches in many near-shore fisheries (McClanahan and Mangi 2004, Obura et al. 2008) are being reported across the region. Governments and fishing communities alike are therefore increasingly looking at managing the exploitation of resources harvested from coastal marine ecosystems (GoK 1991, GoT 2001, GoK 2007). However, this task is complicated by spatial mobility of fishers across local and national boundaries and by the fact that very little is known about the extent and pattern of these movements, what the underlying drivers of migration are, and what the potential impacts of it are on communities of both origin and destination. This aim of this project was to address some of these knowledge gaps in the WIO region by investigating the factors driving fishers to migrate from their home grounds in Kenya, Tanzania, Mozambique, Madagascar, and the Comoros. This included establishing the migratory patterns followed by fishers, the factors influencing the choice of destination areas, assessing the impact of the migrant fishers on communities of destination, as well as determining the social and economic issues facing migrant fishers.

The concept of migration implies to move, either temporarily or permanently, from one place or area to another. Migration is widely considered to be one of the most important demographic factors affecting the environment, yet it is also one of the most difficult to adequately assess (Curran 2002). This is particularly true for fishers' migration because of the dynamic nature of both temporal and spatial aspects of their movements and the fact that few systems are currently in place to effectively monitor these. What is known to date is that some fishers in the WIO region undertake shorter-term movements over a limited spatial area, sometimes caused by displacement from marine protected area initiatives (Malleret 2004). Others undertake longer-term movements, over longer distances, sometimes even crossing jurisdictional and national boundaries (Glaesel 2000, Crona and Bodin 2006, Crona et al. 2010). What is not known,

however, are more specific details about the routes migrant fishers follow, what determines these routes, and if they change in relation to seasonal variations of target stocks? Very little effort has been put into systematically collecting information on the primary target species of migrant fishermen, if target species differ across countries within the region, and how choice of migrant destination areas are influenced by these target species and different coastal marine habitats. Section 4 of this report addresses this knowledge gap by delineating routes and target species of migrant fishermen in the WIO region and linking preliminary data on fishers' movements to specific coastal habitats (e.g. seagrasses, reefs, mangroves etc). Section 4 ends by discussing the different types of migration patterns observed in the region and relating them to existing classifications of fishers' movements (c.f. Randall 2005, Njock and Westlund 2010).

The drivers of migration in the WIO region are not well understood, multiple drivers are often involved and they vary from place to place. However, in general, drivers of migration can be roughly categorised as socio-cultural, environmental, and economic (c.f. Bilborrow and Okoth-Ogeno 1992, de Sherbinin et al. 2008). In sections 5, 6 and 7 we describe these drivers as they relate to the individual countries and summarize these patterns across the region.

Just as the drivers behind migration in the WIO region remain obscure, the potential impacts of migration on areas of destination are unclear. Evidence suggests that in some areas migrant fishers are accepted by local communities provided certain procedures are respected (e.g. seeking local permission to fish) (Crona and Bodin 2006), while in others they are grudgingly tolerated or chased away (pers obs). Migrating fishermen are often perceived as the main culprits of resource over-exploitation and they are often thought to have negative effects on local management institutions (Cassels et al. 2005). This argument is often based on the premise that outside users lack the incentive to conserve resources where they visit briefly and that they will move out when the resource declines (Berkes et al. 2006, Crona and Bodin 2006). Despite these suggested negative effects evidence of migrant fishers' impacts remains largely anecdotal (Lopes and Gervasio 2003, Kimani et al. 2009). In section 8 of this report we address this by summarizing the results of our data collection across five countries and highlighting the institutional, economic, social and ecological effects of migrants on host communities.

Finally, literature has suggested that migrants can face different challenges when they are away from their home communities (Overå 2001, Marquette et al. 2002, Allison and Seeley 2004). This report outlines the issues that emerge as important challenges facing fishers during migration in East Africa (Section 9). Section 10 outlines recommendations that can be made with reference to fishers' migration based on the data collected in this project. This includes a discussion of the inherent trade-offs between recommendations depending on policy goals. We end with a section (11) outlining recommendations of future research as well as areas where we see the potential for integration with other

MASMA funded projects. We also include a brief reflection on the research process and some lessons learned for future research on migration issues in the region.





Fishing boats, Mozambique (Photo: S Rosendo)

## 2. Background and theory

Migration is a complex phenomenon. Migration scholars have long sought to tease out the factors that either push or pull people towards migration (see e.g. Stark and Taylor 1991, Hunter 1998, Jordan and Düvell 2002). Environmental degradation has been seen as one important push factor, forcing people to migrate out of an area. Curran (2002) suggests that this push factor may be particularly important in less developed countries, and it is supported by numerous case studies (Bilsborrow 1992, Bilsborrow and Okoth-Ogeno 1992, Döös 1997). This reasoning is also what has given rise to the term and concept of “environmental refugee” (Afifi and Warner 2008). In this section we review the literature on migration and the environment and outline the framework which forms the theoretical and conceptual basis of this project.

Before we delve into a review of the factors thought to affect migration, as well as the effect of migration on social and environmental variables, it is important to define what we mean by migration. The term has been loosely used to refer to a number of different movements by people at various temporal and spatial scales. Within developed countries migration is commonly seen as a more or less permanent move, across a jurisdictional boundary which could be either sub-national (such as county or province), or national. Local moves within a jurisdiction are referred to as residential mobility (Greenwood 1997). In a developing country context the movement of people seems less unidirectional and permanent. In many rural societies studies have observed extensive temporary, circular and return migration, alongside more permanent relocation (Lucas 1997). Displacement is another term used to define movements of people as a reaction to critical environmental and or social conditions, such as floods, hurricanes or war (Döös 1997, Urdal 2005). The different types of migration are hypothesized to have variable impacts on the social and ecological environments as a result of the different types of strategies and capitals deployed by migrants in the different situations. Curran (2002) summarizes the importance of this succinctly when she states that “[d]efining the type of migration process affecting a particular origin or destination is critical for understanding its impact upon environmental outcomes” (Curran 2002: 103).

Coastal fisheries resources are characterized by significant temporal and spatial fluctuations. For example, many marine fish stocks migrate seasonally over large

distances. Consequently, migration is often an integral part of the fishing profession and could thus be seen as a social adaptation to a complex environment. Since our primary focus is on migration of fisherfolk in coastal environments, we treat migration as a voluntary process. Although degrading resources can certainly be a factor which affects the decision to fish elsewhere or relocate, migration is not judged to be necessary for explicit survival, in comparison with floods, hurricanes or war, as mentioned above. Furthermore, previous work suggests environmental degradation is rarely the sole factor determining migration among fisherfolk (Jul-Larsen and Kassibo 2001, Overå 2001, Marquette et al. 2002, Cassels et al. 2005).

What follows is a review of the literature on migration and the environment structured around causes of migration, the impacts of migration on both places of origin and host communities, and the mechanisms by which migration becomes possible. Based on this review we develop the conceptual framework used to study migration in fisheries in East Africa and the broader WIO region.

## **2.1 Drafting a theoretical framework for studying migration in fisheries**

Although migration at certain temporal and spatial scales may be an integral part of the fishing profession, and thus voluntary, many factors nonetheless play a role in the decision to migrate, as well as the scale of the migration undertaken. A brief review of the literature reveals several ways of structuring the theoretical framework for investigation of migration in general, but in the literature on migration and the environment a coherent theoretical framework for addressing the causes and impacts of migration has been largely lacking, according to prominent scholars like Sara Curran (2002). A dominant approach, the push-pull framework mentioned in the introductory section, stems from a primarily classical economic perspective, and was originally a theory about internal (within a nation) mobility (see review in Jordan and Düvell 2002). This framework is primarily concerned with determining the factors that either push migrants from a place of origin, or pull them towards a new destination. It can thus be said to be the body of literature that most explicitly addresses the causes of migration.

Although the push-pull paradigm has been influential in the migration literature, primarily from an economic perspective, some authors have begun to explore its limitations. Even though migration may occur because of environmental degradation this analytical framework does not answer the question of why and how people move to a certain location and not another of equal environmental quality, or why some individuals remain in degraded environment while others migrate (Curran 2002)? It also does not address the impacts of migration on communities of both origin and destination.

In terms of the impacts of migration, a common approach to the study of this issue appears to be comparisons between spontaneous versus forced migration to show differential environmental impacts by migrants (Bilsborrow and Okoth-Ogeno 1992,

McIntosh 1993, Dwyer and Minnegal 1999). Others have linked environmental effects of migration to the type of migration (return versus new migrants) (Bilsborrow 1992, Conway and Lorah 1995).

Remittances are another lens through which environmental impacts of migration have been studied (see e.g. Bilsborrow 1992, Dwyer and Minnegal 1999, Adger et al. 2002). Work on remittances has led to questions about the flow of remittances and how this is tied to social relations in both destination and origin. This, in turn, has shifted the focus of migration scholars towards the concepts of social capital and social networks, and the role they play for mediating the impact of migration on the environment. In a comprehensive review Curran (2002) thus poses what she perceives to be two critical questions for understanding the impact of migration on the environment; Which migrants with access to which resources? And, how are these migrants embedded in the set of social relations defining ecosystem use in a place of destination?

Before we discuss the impacts of migration further we turn to the issue of who migrates and the resources they make use of to facilitate migration. This is often referred to as migrant selectivity in the migration literature.

## **2.2 Migrant selectivity: the mechanisms by which migration occurs**

Not all people migrate; some do and some stay. Understanding the complexity of interacting factors which determine the decision to migrate is important. Linking this to the livelihood approach (Allison and Ellis 2001) one could, in a simplified manner, say that all the factors which affect a person's decision to migrate can be framed in terms of that person's differential access to five types of capital; human, physical, financial, social, and natural (Figure 2.1).

Despite the complexity of interacting factors, it is surprising to note the remarkable consistency in the age and education of migrants, across developing and developed country contexts (Curran 2002). Studies show that individuals are most likely to migrate in their mid- to late twenties, and within age classes probability of migration rises with increasing education (human capital). Nonetheless, the clarity of these relationships becomes muddled somewhat in less developed countries, largely because access to other forms of capital often constrains migration decisions (Curran 2002). For example, access to financial capital seems to follow a U-shaped curve in relation to migration and Lucas (1997) has shown that middle-income individuals are less likely to migrate than those from poor or very rich households. He also suggests that short-term migration may in fact be less closely related to human capital, but instead concerned more with attaining rapid financial gain for certain targets such as marriage, retirement, etc.

Access to physical as well as financial capital (such as boats, fishing gear, and credit), is important for many migrants, particularly in fisheries. In the Ghanaian fisheries access to a canoe, or a place in a canoe company, is important for the ability to migrate (Overå

2001). Similarly, access to capital through the production unit a fisherman belongs to, or through traders, seems to affect the success of the individual migrant in the Niger Delta (Jul-Larsen and Kassibo 2001).

Differential access to natural capital can also be a determinant for migration. In parts of West Africa fishers' migration has been portrayed as a result of poor soils, land shortage and declining fisheries yields (Nukunya 1991), although this 'push' factor has been contested by others (Jul-Larsen and Kassibo 2001, Overå 2001). However, access to clean air and a safe natural environment has been seen to affect the decision to migrate in more developed countries (Hunter 1998), and could therefore be seen as an environmental cause of migration.

Finally, in recent years social capital has been identified as an important factor affecting the decision to migrate (Curran 2002, Cassels et al. 2005). In this respect, social networks have come into particularly focus. Social networks constitute the social relations a person has with others. As such the majority of the social processes in society are mediated by the configuration of social relations, and an individual's social connections in both places of origin and destination have been shown to be important for the decision to migrate (Jul-Larsen and Kassibo 2001, Overå 2001 and references therein, Randall 2005).

In relation to migration social networks are commonly understood as the links between residents in a community of origin and individuals living in another place or individuals who have migrated before regardless of their current residence (Massey 1990, Hugo 1998). But the relations between migrants in the destination (c.f. migrant enclaves Portes and Sensenbrenner 1993), or the relations between migrants and non-migrants in the destination is equally important. Curran (2002) defines three mechanisms by which social networks increase the propensity of a person to migrate to a specific destination; i) demonstrated feasibility, ii) reduced expected cost and risk, and iii) increasing expected benefits. Demonstrated feasibility is manifested through social relations that inform a potential migrant about possible destinations and the possibility of social and economic benefits (Hugo 1991). Social relations can also reduce the expected cost and risk by providing information on best migration paths and safe routes and entry points, but also by reducing cost of assimilation upon arrival in a new destination (e.g. housing, help with language, etc.). Similarly, social relations can increase expected benefits by reducing cost, such as housing investment, but also by directly linking the new migrant with important contacts which facilitate the job search (c.f. social capital as defined by Lin 2008) or access to trade links (Taylor 1986, Massey et al. 1987, Crona et al. 2010). Curran (2002) points out that one of the most important insights from this research has been that social networks are cumulatively caused. This means that with increased number of migrants in an area, the marginal risks decrease and the marginal benefits increase for migration to that destination. Thus the three mechanisms above are also related to the standardization of migration flows over time. I.e. migration patterns often seem to be reinforced over time in response to these three

points, thus feeding back and affecting feasibility, risk and cost assessments and cementing migratory patterns in a self-enforcing cyclic pattern (Jul-Larsen and Kassibo 2001, Curran 2002).

## **2.3 Effects of migration on host and home communities**

### *2.3.1 Knowledge, values and attitudes*

As we have seen above, the general literature on migration suggests that social capital and social networks importantly explain the choice of migrant destinations but also the degree of assimilation upon arrival. However, this is the least theorized and conceptually evolved theme in migration literature (Curran 2002). Social networks exist between migrants at a destination area (Portes and Sensenbrenner 1993 and discussion in Curran 2002), between migrants and non-migrants (i.e. local embeddedness), and between migrants and their home communities, manifested through e.g. remittances. Social relations affect most social processes, but for the purpose of drafting our theoretical framework it is helpful to define some specific mechanisms by which these relations are thought to affect host as well as home communities. A review of the literature on migration and the environment reveals three significant ways by which impact likely occurs; i) by affecting values and perceptions of both migrants and non-migrants, ii) by affecting primarily informal institutions in the host area, with consequent effects on the environment, and iii) through remittances which can affect consumption and investment patterns in places of origin.

It is a well-established notion that poverty can contribute significantly to environmental degradation (WRI 2005). Not only are time horizons of poor resource extractors often short due to acute consumption needs and food insecurity, but they are often significantly constrained in their ability to modify extraction techniques as a result of minimal access to financial capital for new investment. Poor migrants are thus likely to be equally constrained by these factors and how migrants extract resources from the environment and the rate or efficiency of extraction are therefore important topics of study (Cassels et al. 2005). Work shows that in some cases migrants have negative effects on the natural resource base because of their lack of local ecological knowledge (Browder 1995, Begossi et al. 2002), but also from use of inappropriate technology (Perz 2003). In other cases negative impacts may be less due to poor knowledge among migrants and more tightly associated with values and attitudes. For example, work in Zimbabwe showed that migrants resettled through government programs were not interested in farming and consequently did not invest in sustainable land use practices (McIntosh 1993). Similarly, in Kenya, Crona and Bodin (2006) suggest that migrant fishermen have less of a sense of place and feel less commitment to the host area, with implications for local fisheries management. But examples also exist where migrants have adopted local management practices (Dwyer and Minnegal 1999), or gained a greater appreciation of ecosystem services and actually invested in conservation or more sustainable management practices (Conway and Lorah 1995). Incidentally, the

former two examples describe return migrants, i.e. migrants who return to the same area of destination over time. It is therefore hypothesized, if not proven, that they are more socially embedded than new migrants arriving in an area, perhaps ignorant of local ecology as well as social norms and practices. Studying the effect of social relations on the spread of local knowledge, values of and attitudes towards the ecosystem is thus of prime importance for understanding the effect of migration on natural resources in the destination.

### *2.3.2 Social relations and local institutions*

Influx of new individuals into any social context is bound to have an effect on the configuration of the social relations. It is often presumed that migration into an area weakens the social bonds in the place of destination (Curran 2002). Many examples exist to support this hypothesis from around the world, but primarily in less developed country contexts (Bilsborrow 1992, McIntosh 1993, Izazola et al. 1998, Katz 2000). A common feature in these studies is the combined effect of added pressure on the natural resource through increased population, while simultaneous pressure is added on social institutions through reduced trust and reciprocity, a situation which commonly has negative effects on effort to collectively manage a resource (Ostrom 1990, Ostrom et al. 1999). However, contradictory examples exist. Some work show that migrants have less impact on the resource base than non-migrants (Bilsborrow 1992), although no specific explanation for this is given. Other authors have shown that increased social embeddedness of migrants at their destination can diminish negative impacts and potentially enhance the capacity for long-term sustainable resource management (Conway and Lorah 1995). A key finding that emerges is thus that the impact of migration on local institutions and local resources seems to be related to the degree to which migrants are socially embedded in their host communities. However, as Curran (2002) states, “there has been no systematic analysis of how migration affects common property resource regimes (or vice versa) either through embedding processes or disruption of social capital”.

### *2.3.3 Remittances*

An important part of understanding how effects of migration are mediated through social relations is by looking at reciprocity. The social relations between migrants and their home communities are often manifested through remittances and these effects are primarily manifested in the place of origin. From the discussion above we can see that migrant selectivity and social networks coincide to create dynamics between origin and destination regarding the flow of both people and capital.

A large part of the literature on migration and the effects of remittances has been concerned with investment patterns and development outcomes. Curran (2002) concludes that remittances have been looked at in three primary ways. Firstly through how they affect income and wealth distribution, where evidence shows an increase in

income and wealth inequality in places of origin. Secondly through their effect on consumption patterns, resulting in increased consumption although little evidence apparent exists for increased investment in productivity (e.g. Adger et al. 2002, Naylor et al. 2002). Finally, the nature of the investment seems to be related to who remits (see (Curran 2002) for further discussion and references). There is also evidence that remittances can serve to enhance traditions and institutions in places of origin. This has been particularly evident in work from West Africa (Overå 2001). As suggested by Curran (2002), applying these three aspects of remittances to investigations of migration and environment is not farfetched but not much has been done to date.

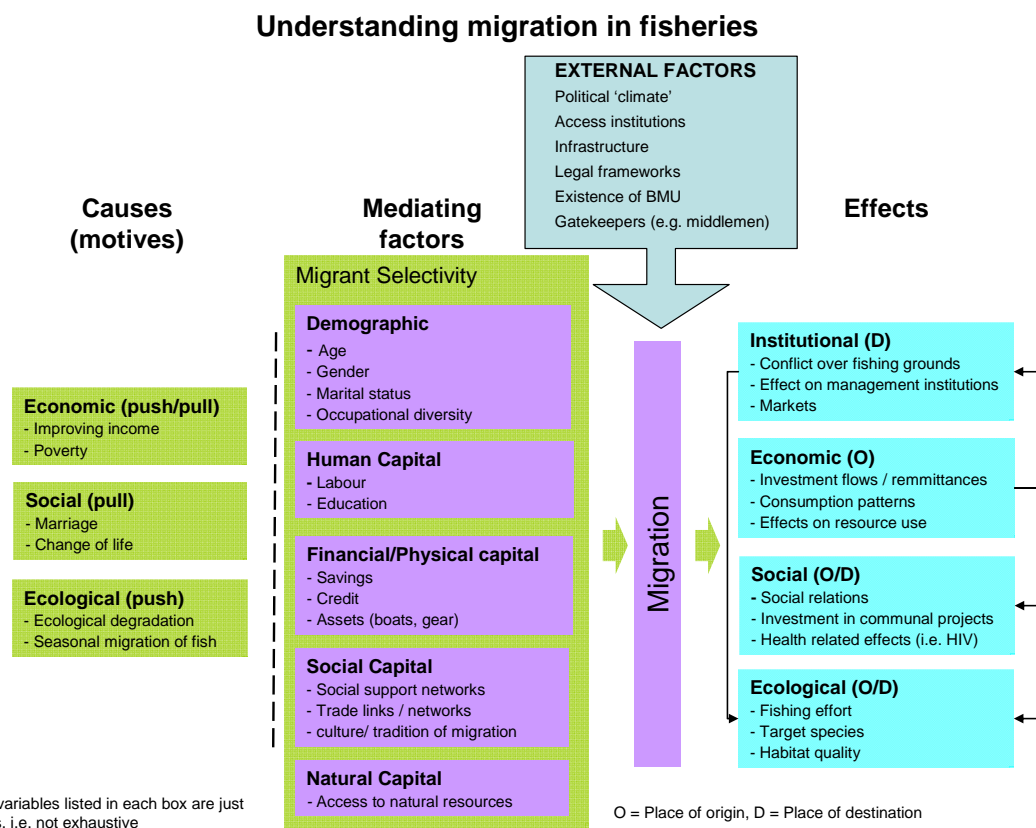


Figure 2.1. An integrated conceptual framework for studying migration in fisheries

This section has attempted to draft a theoretical framework for investigating migration in fisheries, by drawing on the vast literature of migration in general and migration and the environment in particular. Figure 1 outlines how the theoretical concepts reviewed here can be integrated to explain various outcomes related to migration and the environment, and fisheries in particular. This forms the conceptual and theoretical backbone against which the methodologies of this project were developed.

## *2.4 Report structure*

In the following section (Section 3) we outline the study sites in each of the countries of investigation<sup>1</sup>. We also describe the methods used and how these were developed. Sections 4 to 9 will describe our results. In each section the data for each country is presented separately, but to allow readers an assessment of the overall general trends each section also finishes with a summary of trends from the data across all countries. The first of these sections (4) begins by describing the patterns of fishers' movements observed in this study. It will also characterize the migrants by outlining some general demographic patterns and describe their fishing operations. The following section (Section 5) will describe and discuss the drivers of migrations, as observed across the five countries of investigation. Section 6 and 7 will present data on the mechanisms that facilitate migration within and across countries, including access by migrants to different types of capitals, and the role of traders and institutions in hindering or facilitating migration. Section 8 will describe the potential impacts of migration on host communities in terms of institutional, economic, social and ecological effects. We have chosen to subdivide the presentation of data in sections 4 to 8 under country headings to facilitate for readers interested in a fishers' migration in a specific country. In section 9 we describe some of the social, economic and institutional issues that face migrants during their time away from home. We end with a section outlining policy recommendations and a discussion of the various trade-offs between different policy options (Section 10). We also include a section where we outline areas where the findings from this project could be integrated with other MASMA research (Section 11). In conclusion we reflect on the research process and outline some lessons learned for future projects dealing with similar issues in the region.

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<sup>1</sup> Note that data on Madagascar is not included in this report but is appended as a separate report.





Figure 2.2. Migrant boats leaving for a day's fishing in Moa (Photo: B Crona)



Piloting surveys in a fishing community in Kenya (Photo: B Crona)

## 3. Methods

### 3.1 Country descriptions and study sites

The work for this report was conducted in five different countries around the WIO region; Kenya, Tanzania, Mozambique, Comoros, and Madagascar. The Madagascar data is appended in a separate report. Below we detail the contexts and research sites for each of the countries in detail, and outline the sampling frame followed in each country. At the end of this section a map of the entire region and most of the study sites is included (Figure 3.2).

#### *KENYA*

Kenya's coastline is characteristically both sandy and rocky with an inshore fringing coral reef that runs parallel to the coastline. Sea grass beds dominate the sandy substrates immediately after the reefs in most areas. Kenya's continental shelf ranges from 5km to 10km at the widest part. It drops to below 200m just 4 km away from the shoreline (Obura et al. 2000). At the mouths of rivers, breaks in the coral cover occur where there is heavy sedimentation. Coral reef fisheries are an important source of food and income for many artisanal fishers in Kenya (Obura 2001). In recent years, the country has reported a decline in catches in near-shore fisheries. Threats and problems facing Kenya's near-shore artisanal fisheries include unsustainable fisheries utilization due to over-exploitation, use of destructive gears (McClanahan et al. 1997, Mangi and Roberts 2006), increasing population pressure, poverty and very few livelihood alternatives other than fishing, negative perceptions and attitudes to fisheries management interventions, inadequate enforcement of legislation, insufficient information on fisheries resources and a lack of fisheries management plans. Since the 1990s, efforts involving sharing power with the users of the resource have been made. The National Oceans and Fisheries Policy (GoK 2008) and the Beach Management Units (BMUs) Regulations (GoK 2007) both include provisions for the co-management of fisheries resources emphasizing the participation of communities. All the landing sites where the study was conducted had a local BMU.

The sites were chosen to include a selection of sites in which prior work by team members had shown some concentration of migrant fishers, and which also represented both the north and the south coast (Table 3.1). The sites included for survey work were (from north to south) Vanga, Shimoni, and Kipini. However, additional sites were also included for key informant interviews. These were Takaungu, Mayungu, Ozi and Ngomeni (north of Mombasa) and Gazi on the south coast. Information on the three main sites is detailed below.

### **Vanga**

Vanga and Jimbo villages are sheltered sites enclosed by mangroves along the south coast of the Indian Ocean. They are located in the southern-most part of the Kenyan coast at the bordering Jasini and Mwa villages on the Tanzania side. The social make-up of these communities include Digos, Durumas, Washirazi and other coastal tribes that have migrated to this area for business, intermarriage or fishing. Jimbo has a population of about 400 people while Vanga has 4000. The main economic activity is fishing and making of fishing gear. Vanga is the first village to have ring net fishing in Kenya although it is now spreading to the rest of the coastline. The area has a diversity of coastal ecosystems including mangrove swamps and forests, sea grass meadows, mudflats, marshes and coral reefs rich in biodiversity resources. These form important sources of income and also contribute positively to sustaining local livelihoods.

### **Kipini**

Kipini is a main coastal rural trading center located 21 km from Witu forest and about 260 km north of Mombasa with a population of approximately 2000 people. The area includes communities of pastoralists and fishermen. Tourism development has not taken off despite its potential. Kipini lies on the delta of Kenya's largest and longest river, the Tana (850km long). The area has mangroves along the main river course between Ozi and Kipini and large areas with tall *Heritiera littoralis*. The sandy beaches make it a key nesting area and foraging ground for green turtle, olive ridley and hawksbill turtle.

### **Shimoni**

Shimoni is located about 160km from Mombasa in the South coast of Kenya on the Pemba channel. Shimoni village with a population of approximately 940 is adjacent to other fishing villages including Kichangani and Anzwani on mainland and Kibuyuni on the adjacent Wasini Island. These fishing villages are characterized by increasing transboundary fishing activities that have occasionally resulted in resource use conflicts. Part of the traditional fishing ground adjacent to Shimoni was converted into a marine protected area (Kisite-Mpunguti Marine Park and Reserve) which has served as a major tourist attraction in the last decade.

Table 3.1. Sampling frame for collection of key informant data in Tanzania.

Surveys	Site	Comment
24 Migrant Fishers 14 Local fishers	Vanga	Includes Jimbo
22 Migrant Fishers 13 Local fishers	Shimoni	
25 Migrant Fishers 10 Local fishers	Kipini	Includes Ziwayuu island

Key informant interviews	Site	Comment
1 Migrant fisher 1 local fisher 2 Fish traders 1 local leader 1 BMU	Vanga	Local Immigrations officer not authorised to give interview
1 Migrant fisher 1 local fisher 7 Fish traders 1 local leader 1 BMU 1 Senior Fisheries Officer	Shimoni	Local Immigrations officer not authorised to give interview
3 Migrant fisher 4 local fisher 4 Fish traders 1 local leader 1 BMU	Kipini	
1 Fish traders 2 BMU 1 Senior Fisheries Officer	Malindi	
5 local fisher 3 Fish traders 1 local leader 1 BMU	Mayungu	Local BMU unwilling to facilitate interview with migrant fishers
5 local fisher 1 Fish traders 1 BMU	Ngomeni	
3 Migrant fisher 1 BMU	Ozi	
4 Migrant fisher	Takaungu	

3 local fisher 2 Fish traders 1 BMU		
1 Seniouir Fisheries Officer 1 Seniouir Immigrations Officer	Mombasa	Interviews with seniouir provincial adminstrators

## TANZANIA

In Tanzania, data were collected across 5 different sites along the coast and on Zanzibar. On the northern coast, key informant interviews were done in Moa (Muheza District), Sahare in Tanga, and Kigombe (Pangani District), which are all located within the Tanga Region. Surveys were also conducted in this region but were limited to Moa (Table 3.2). Surveys with both locals and migrants were also collected in Kunduchi (Kinondoni District) in the Dar es Salaam Region. These were complemented with key informant interviews in Kunduchi, as well as group interviews with migrant fishers in Mbweni, Zanzibar.

Table 3.2. Sampling frame for collection of key informant data in Tanzania.

Key informant interviews	Site	Comment
1 Local leader	Moa	Hamlet Chief
1 Elder 2 Migrant fishers 1 Local leader	Kigombe	
1 Migrant fisher	Sahare/Tanga	
Group interview with migrant fishers	Mbweni, Zanzibar	
1 Migrant fisher 1 Local/Elder fisher	Kunduchi	
<b>Surveys</b>		
9 Local fishers	Moa	
20 Migrant fishers	Moa	
10 Local fishers	Kunduchi	
20 Migrant fishers	Kunduchi	

The sites were chosen to represent the both rural and more urbanized sites targeted by migrants. The more rural sites include Moa and Kigombe, while Sahare, Kunduchi and Mbweni are all more closely located to urban centers. Below is a short description of the respective sites, running from the North to the South.

### **Tanga (Region and City)**

Tanga is both the name of the most northerly seaport city of Tanzania, and the surrounding Tanga Region. The city is located on the northern Tanzanian coast, close to the Kenyan border and it is the Regional Headquarters of the region. With a population of 243,580 in 2002, it is one of the largest cities in the country.

Artisanal fishing is one of the main livelihood activities in the Tanga Region, with up to 80% of the adult population involved in some of the rural villages such as Moa (Gorman 1995). Catches are landed at roughly 50 government-designated landing sites, although a number of other sites are also used (Wells et al. 2007). Fishers' migration has been documented as a common feature of this region, with fishers arriving from Zanzibar and Pemba, as well as distant locations on the mainland coast (Bensted-Smith 1998). Traditionally, migrant fishers arrived and introduced themselves to the local authorities and fisheries officers, but more recently, with greater pressure on the marine resources, villagers have requested that they actively seek permission to fish before entering the fishery (Wells et al. 2007).

### **Moa**

Is a small village located approximately 40 km north of Tanga City and close to the Kenyan border. A large majority of the population is dependent on artisanal fisheries. Moa is located at the inner part of a large bay, and the landing beaches are surrounded by mangroves on either side. It is a small village and has only one landing site and one fish market.

### **Kigombe**

Kigombe village is situated in Muheza District approximately 35km south of Tanga and 15 km north of Pangani. The village has a total population of 3,751, 68% women and 32% men (Gorman 1995). There is a very strong link between Kigombe and Pemba especially with respect to Kojani fishermen who come to fish in Kigombe.

Fishing is the main economic activity in Kigombe (approximately 80% of population estimated by local leader) but the team was informed that there is a decrease in catch these days. Although there are natural explanations (e.g. decreased fish stock, dynamite fishing, poor equipment) fishermen believe that other events have caused it. According to the ward fisheries officer, big and well equipped fishermen come over from Pemba especially Kojani village and take a lot of their fish. These fishermen are well organised and well equipped.

The fisheries officer told the team that on one occasion, fishermen from Kojani came and caught a lot of fish. Villagers in Kigombe became annoyed and drove them away with force. The Wakojani told them that they would go but 'we will get you back, the fish will come with us'. The villagers believe that the spirits of the Wakojani took most of the fish stock with them and they believe that the spirits of Kojani are stronger than

their spirits and that is why the fish have gone. In the light of this and other beliefs, the fishermen use elders to help with sacred rituals to appease the spirits (tambiko).

Villagers use all the reefs from Karange Island in the north to Maziwe in the south (Coral Reef Survey, 1996). Their main fishing area however, is associated with 14 reefs closer to the village; Karange Island (South), Shenguwe, Fungu Tongoni, Kange, Makome, Taa, Chanjale (Kijamba Kai), Kitanga, Upangu, Maji Viki, Gongo la Maji Viki, Chamboni, Mгаа, and Kandacha (Figure 2). Use of these reefs is shared with the two neighbouring villages of Mwarongo and Tongoni as well as with an increasing number of visiting fishermen (Table 2). Peak fishing periods are associated with the north-east monsoon (seasonal) and spring tides (monthly). As shown in Table 3.3 the number of migrant fishers increased between 1990-94 but no data is available after that.

Table 3.3. Numbers of resident and visiting fishers and vessels for Kigombe, 1990-1994 (Source: (Horrill and Kalombo 1997))

Year	Resident Fishers	Resident Boats	Visiting Fishers	Visiting Boats
1990	120	63	37	11
1991	100	67	30	19
1992	80	80	59	33
1993	99	84	68	20
1994	100	86	84	28

### **Kunduchi and Mbweni**

Kunduchi is located approximately 15 km north from Dar es Salaam. Although a village in itself, the area north of Dar es Salaam is now becoming so developed with houses that a clear distinction is disappearing. Kunduchi is located on the north shore of a small bay. It has a large fish market and a considerable harbor. At the time of our data collection, a large number of large wooden vessels, using primarily ringnets (purse seines) were operating out of Kunduchi, many of them with migrant crews. Mbweni is a landing site located at approximately 30 km north of Dar es Salaam. Mbweni is a large village with peri-urban influences due to its location near to the capital. At the time of our work some crews of migrant fishers were residing at the outskirts of the village in temporary camps close to the beach.

## *MOZAMBIQUE*

Mozambique has a coastline extending over 2700 kilometres, which includes a wide diversity of habitats such as coral reefs, mangroves, sea grass meadows, sandy beaches and estuaries. The ecological diversity and uniqueness of the Mozambican coastline has earned it an important place in regional biodiversity conservation plans (WWF 2004). Mozambique experienced 16 years of Civil War soon following independence from

Portugal in 1975, which stunned the country's development. Since the end of the war in 1992, the country has experienced significant positive changes. Important gains in poverty reduction occurred between 1996 and 2003 when the percentage of people living in poverty dropped from 69% to 54%. Since then, progress in poverty reduction has slowed down and even stagnated. The latest poverty assessment shows that, in 2009, 54.7% of the population still lived below the poverty line (MDP 2010).

The Mozambique fieldwork was conducted in the north of the country, in Cabo Delgado Province. The Province borders the Ruvuma River and Tanzania to the north, Nampula Province to the south, Niassa Province to the west, and the Indian Ocean to the east. Administratively, Cabo Delgado is sub-divided into 16 Districts. The Province has approximately 340 kilometres of coastline, and includes the Quirimbas Archipelago formed by 28 islands. The islands are situated at a maximum distance of 10km from the mainland and vary in size from approximately 24km<sup>2</sup> to less than 1km<sup>2</sup>. Only the larger islands, which include Quirimba, Ibo, Quisiwe, Matemo and Vamizi are permanently inhabited and have been so historically. Permanent settlement in the other islands is constrained by lack of freshwater and soils for farming, but they are visited on a regular basis by fishers who spend variable periods of time there on fishing camps. These fishers come from nearby areas in the mainland and well as from further way, including other areas of Cabo Delgado, from Nampula Province and from Tanzania.

### *Field sites*

Migrant fishers are found in several areas of Mozambique (Gervasio 2000, Lopes and Gervasio 2003). We selected Cabo Delgado Province as a broad area to focus our research in Mozambique because this area is known to be an important destination for migrant fishers coming from other parts of the country and Tanzania. The Mozambique research team had experience of working in this area with local fishing communities and had already some knowledge of which sites had more migrants. The final decision of specific field sites was made in consultation with experts upon arrival in Pemba, the capital city of Cabo Delgado, and who have extensive knowledge of the distribution of migrants along the coast. We selected four sites for surveys and in-depth key informant interviews. These were selected to represent a range of situations in terms of the size of the local and migrant population, accessibility, proximity to markets and migrant settlement. The field sites included two islands, Quirimba and Vamizi, and two areas in the mainland, Pangane and Mocimboa da Praia. We also worked at a fifth site, Muechanga Island, but there we only did interviews with fishers. In addition to surveys and interviews at these sites, we also conducted key informant interviews at several District capitals and in Pemba, the Provincial capital. Tables 3.4 and 3.5 summarise the number of surveys and interviews undertaken at each study site.



Table 3.4. Sampling frame for collection of survey data in Mozambique

Type of survey	Field site				Total
	Pangane	Quirimba Island	Mocimboa da Praia	Vamizi Island / Olumbe	
Migrant fishers	19	19	21	23	82
Local fishers	25	20	21	19	85

Table 3.5. Sampling frame for collection of key informant data in Mozambique

Key informant interviews	#	Sites
Migrant fishers	12	Mocimboa, Vamizi, Mecufi, Pengane, Mechanga, Quirimba
Local fishers	5	Mocimboa, Vamizi, Mechanga
CCP leaders	6	Mocimboa, Pangane, Quirimba, Vamizi, Pemba
Government officials	11	Pemba, Macomia, Mocimboa, Mucojo
Fisheries technicians	4	Ibo, Mocimboa, Quirimba
Village leaders & elders	9	Ibo, Quirimba, Pangane, Vamizi, Mocimboa
Fish traders / processors	4	Mechanga, Mecufi, Mocimboa

### Pangane

Pangane is a village of 3,730 inhabitants situated in the Mucojo Administrative Post, in Macomia District. It is located on a headland amidst a grove of coconut palms. Approximately 1.5 nautical miles to the east of Pangane there is an island called Quifula, which at is approximately 2.9km across. Pangane is located in the buffer zone of the Quirimbas National Park, just outside its northern boundary. The main livelihood activities in the village are fishing, farming and informal trade. Subsistence crops include cassava, beans, maize and millet while are coconut, cashew and sesame and the main cash crops. Rice is also grown in plots located several kilometers away from the village, in inland areas. Agricultural productivity is considered low due to poor soils, adverse climatic conditions and pests, including frequent damage by wildlife, which according to villages has worsen since the creation of the Quirimbas National Park. The Park is helping local communities defending their fields against the elephants. There is a small tourism complex in the village offering basic accommodation (Pangamar) and a camping site (Ponta Pangani). There is another tourism complex called Dawa Safari under construction on the larger island visible from the village (Quifula). Approximately 15km south there is a well-established small resort called Guludo Lodge, which has established a foundation called Nema that promotes education, health and water related community development projects.

The village has little infrastructure. The 11km road connecting it to Mucojo is very poor and of difficult passage for normal vehicles. From there to the District capital, Macomia, the 48 km road is equally unpaved but in better condition. The village has no electricity but a growing number of families have generators and solar panels. There is a primary school teaching up to 7<sup>th</sup> grade but no health post. The nearest health post is found in

Mucojo. Freshwater is obtained from water-wells using the bucket and rope method. A number of wells are fitted with hand operated pumps but some are broken.

Pangane is believed to have one of the largest migrant populations of all migrant fisher destinations on the mainland. Village authorities estimate that migrant fishers outnumber local fishers. These fishers began to arrive to the area some 17 years ago, after the end of the Civil War. During the 1990s, few fishers came specifically to Pangane. Most stayed in the islands and only came to the mainland to get water, sell fish or buy products. This began to change in the decade that followed when tourism started to be developed in the islands and at some fishers were prohibited from camping. Nowadays, migrant fishers in Pangane come from various parts of Cabo Delgado Province, including Pemba, Mecufi and Mocimboa da Praia, from Nampula Province and Tanzania. Nampula migrants make up the majority of migrants. Most migrants arrive from April to September, with a peak in July, and leave around December. Some migrants have settled in Pangane permanently, some married a local woman while others brought their wives with them. However, the majority are seasonal migrants.

Most migrant fishers live on camps contiguous to the village. There are three camps called Xarifo, Aximi and Saide Mussa with an estimated population of 47, 87 and 30 fishers respectively at the time of research, in July 2009. Local leaders estimate that the village receives up to 250 fishers per year. It is also an important destination for Tanzanian fishers. At the time of research, there were 8 Tanzanian or Tanzanian-owned vessels fishing with light-assisted purse seine nets. These boats operate with large crews of up to 25 fishers, but not all are of Tanzanian origin. Some are recruited locally and include both locals and Mozambican migrants from Nampula.

The main fishing gears used in Pangane by migrants include beach seine, hook and line and purse seine, the latter used by Tanzanian fishers. Migrants also use various types of gillnets, including nets targeting sharks (owned mostly by Tanzanian fishers), and spear. Most of the gears used by migrants are also used by locals, with the exception of purse seine nets. Gleaning for oysters, various types of shells and octopus is also an important fishing activity undertaken mainly by local women. The most common vessels used are dugout canoes, both the local type called *mtumbwe* and the type brought by migrants called *cangaia*. Sail boats are also used with lengths varying between 3 and 7 meters. Only the Tanzanian fishers have motorized vessels.

In Pangane there is a Community Fishing Council (CCP) created in 2007, which has 16 members. The CCP includes some migrant fishers amongst its members. The main activity of the CCP is to enforce fishing regulations, including gear and boat licensing requirements and illegal gear such as mosquito nets and the use of sacks fitted to beach seine nets. The CCP is also responsible for recording the number of migrant fishers and granting them authorization to fish provided they fulfill the legal requirements for artisanal fishing. The general perception is that the effectiveness of the CCP is limited.

### **Quirimba Island**

Quirimba has a population of 3,083 according to the local *Régulo* or traditional leader. The two main ethnic groups are the Muani and the Macua. Most locals belong to the former and migrants to the latter. This island is located within the Quirimbas National Park, which was created in 2002. Quirimba has four neighbourhoods: Igreja, Sukutulo and Kuminazi and Kumilamba. There is a 700 ha coconut plantation on the island which has been in the hands of a family of German origin, the Gessner, for several generations. The main livelihood activities in the village are fishing, farming, informal trade and some employment provided by the Gessner's plantation. Farming in the island is concentrated in a specific area that locals call 'production zone', located in the eastern part of the island. In this area, soils are better suited for agriculture, but production is said to be low. Families also have agricultural fields in the mainland where they farm rice.

Historically, Quirimba had a small population. The population of the island started to increase in 1984 with the Civil War. People from nearby districts in the mainland moved to Quirimba to seek refuge from the war. Much of the present population is made up of people who arrived from nearby districts such as Quissanga, Meluco, Mocomia and Ancuabe during that time. Migrant fishers started to arrive after the war ended. Most of the migrants in Quirimba live in the Sikutulo and Igreja neighbourhoods, in houses they rent or own. Many migrants have also married and settled on the island more or less permanently. In general, the migrants found in Quirimba appear to be better integrated into the local social fabric and activities than at other places. One explanation given for this is the fact that many of Quirimba's inhabitants are themselves not native to the island having come there to escape war, which makes them more open to outsiders.

In terms of infrastructure, there is only one unpaved road connecting the neighbourhoods in the two sides of the island that runs through the Gessner estate. There is no electricity, but a number of people have generators and solar panels. These are much more common in Quirimba than at the other research sites and may be related to income generating projects supported by the Quirimbas National Park. We were told that funds from those projects have been used to buy generators and solar panels. There are two schools in Quirimba, one serving the communities of Igreja, Sucutulo and Kuminazi and teaching grades 1 -7 and another Kumilamba, located on the other side of the island, teaching grades 1-5. There is also a health care post and, recently, a maternity has also been build but is not yet operational.

Currently, there are no tourism facilities on Quirimba, but a lodge functioned between 2005 and 2007 (Quirimba Lodge). There is a luxury lodges in the nearby island of Quilalea. Sometimes, groups of tourists from Quilalea arrive in Quirimba for a guided tour of the village and ruins dating from the colonial period, but villagers say they do not gain any direct benefits from these tours. However, both the Park and Quilalea give some contribution towards community projects such as opening wells, and building and equipping schools. According to the religious leader, all the local population of Quilalea

was removed from the island to give way to tourism. Some were given compensation. About 100 families relocated to the Kumilamba area of Quirimba (the part of the island further away from the three main communities). The current owner of the Gessner estate has plans to develop tourism on the island, but there is no information on when this would be, or the size of the tourism operation. There is a functioning airstrip in the island, which is an important facility for any future development of tourism.

The most widely used fishing gears in Quirimba are beach seine, gillnets, cage traps (*gaiolas*), and fence traps (*gamboa*). Octopus and sea cucumber fishing are also common. In June 2009, there were 110 boats in the three main fishing centres of Quirimba (61 in Sikutulo; 26 in Kiwandala; and 23 boats in Kumilamba). The main types of boats include sail boats (*lanchas*) and two types of canoes (*mtumbwe* and *cangaia*). We were not able to obtain numbers of migrant fishers on the island. In addition to the national legislation regulating fishing activities in general, fishing in Quirimba is subject to additional regulations that come with the island being located within the Quirimbas National Park. The Park is supporting a local Community Fisheries Council (CCP). The Quirimba CCP is fairly well-organised compared to other CCPs. This is likely to be related to the amount of support and guidance given by the Park. The CCP is active in regulating the activities of migrants through fishing licences, fees and time limits of stay.

Some of the activities promoted by the Park have been aimed at setting up producer associations on the island. These have been implemented through an NGO called AMA (*Associação Meio Ambiente*). Two fisheries-related associations have been formed, aimed at farming oysters and lobster. These involve both local and migrant fishers.

### **Mocimboa da Praia**

Mocimboa da Praia is a town of approximately 60,000 inhabitants. It is the largest of our research sites in terms of population. Mocimboa is served by a road paved in parts linking it to Pemba, the provincial capital, and onwards to Nampula Province. The road network also extends inland to cities such as Mueda. The sheltered bay at Mocimboa is an important port for dhows transporting goods and people up and down the coast, from Mozambique Island to Mtwara in Tanzania and beyond. The ethnic background of the population is varied, but the predominant groups are the Muani and the Macua.

The main livelihood activities are fishing, farming, commerce and services. The main food crops that people grow are cassava, maize, rice and millet. All farming is undertaken outside town, on fields and alluvial plains where families camp for periods of time during peak agricultural activities such as planting, weeding and harvesting. The main cash crops are cashew and coconut. After Palma, Mocimboa da Praia is the second largest fishing centre in Cabo Delgado in terms of number of fishers. According to the 2002 artisanal fisheries census (IDPPE 2004), Mocimboa had approximately 4,500 artisanal fishers.

Before independence, Mocimboa da Praia was an important military outpost for the Portuguese. Many of the town's infrastructures and buildings, including the airport, port and hospital date from the colonial period. The airport can handle jets, but is not well maintained and is only used occasionally by light aircraft. The port is also not used intensively. At the time of research, it was being used mostly to export timber. Other facilities include a bank and telecommunications. Electric power is supplied by a diesel generator for a few hours a day, but most people do not have electricity. Most neighbourhoods have primary schools and there is also a large secondary school in town which receives students from surrounding areas on a boarding school basis.

The main gears used by fishers in Mocimboa are beach seines, hook and line and various types of gillnet. Light assisted purse seine nets are also used but by Tanzanian fishers. There are 8 Tanzanian-owned boats fishing with this type of gear. Gleaning is also very common. Mocimboa has four landing sites: Milamba (also called Bazar), Nabubussi, Zalala and Mpanga. Migrant fishers operate from all these sites. The migrants come from Nampula Province, from Pemba, Mecufi and other areas within Cabo Delgado Province and from Tanzania. We were not able to obtain data on the number of migrant fishers. This task is also complicated by the fact that in Mocimboa the migrants live in houses and in many different parts of the town instead of fishing camps.

Most of the fish landed at Mocimboa is sold and consumed fresh, which contrasts with the other study sites where a lot of it is processed, particularly dried. This is not only because there is demand from a large urban population, but also because Mocimboa is better connected to other markets via roads, which enables traders to sell fresh fish in nearby inland villages and towns. Mocimboa is also an important centre for the wholesale of dried fish coming from the islands. The fishing economy is noticeably vibrant in Mocimboa. Landing sites are busy with buyers and there is a large number of adjacent shops and stalls, which profit from fishers and fish traders. Some interviewees noted that as soon fishers sell their catches on the beach they spend it on the shops.

### **Vamizi**

Vamizi is an island located in the Olumbe Administrative Post in Palma District. The island is closely associated with the nearby mainland village of Olumbi. The village of Olumbi has an estimated population of approximately 5,500 and Vamizi Island 400 (Gissamulo et al. 2003). Palma is the most important fishing centre in Cabo Delgado Province with approximately 7000 artisanal fishers (IDPPE 2004). There are three settlements on Vamizi, the original village and two fishing camps called Kivure and Lance. The fishing camps have grown larger than the village itself. Hill (2005) counted 88 houses in the main village, 94 in Lance and 99 in Kivure. Many of the houses at Lance and Kivure are temporary huts, but there are also a number of more durable structures.

In Vamizi there is one primary school. The nearest health most is in Olumbi, on the mainland. There are no sources of freshwater on the island. Water is transported by boat in gallons from Olumbi, on the mainland. There is a luxury tourism lodge on the

island with thirteen individual villas administered by a company called Maluane. Maluane promotes community development and conservation projects on the main village in Vamizi and on Olumbi. It is also supporting the local Community Fisheries Council (CCP) and has encouraged the establishment of a community managed conservation area or 'sanctuary'. The CCP exists since 2006 and is supported by a fisheries technician hired by Maluane. Initially the group had 28 members but at the time of research it only had 16 members. The other members dropped out after sometime because they did not perceive any tangible benefits of being a member.

The main fishing gears in Vamizi are hook and line, spear gun, gillnets and seine nets. Most fishing is undertaken using dugout canoes. There are comparatively few sail boats and only one boat equipped with a motor. The majority of the migrant fishers who come to Vamizi are from Nampula Province. There are also Tanzanian fishers, but in reduced numbers. Local sources estimate that every year approximately 200 migrant fishers arrive in Vamizi, starting from April until September. Their length of stay varies. Some return when they have achieved their objectives in terms of earnings from fishing while others stay for the entire length of the season. Some migrants have also married local women, but only 10 cases of these marriages were reported.

The CCP at Vamizi is trying to actively control the arrival of migrants by requiring fishers to present their gear and boat licenses and authorization to migrate issued by their CCP at origin. However, many migrants do not comply with these requirements. In Vamizi, migrants do not participate in the CCP as members. Records of number of boats, gears and fishers are kept by the local IDPPE technician. Counts suggest that there are 202 seasonal migrant fishers in Lance and 93 in Kivure. The number of semi-permanent migrants on these camps is 96 and 61 fishers respectively. Semi-permanent migrants are migrants that spend most of the year on Vamizi.

### **Muechanga Island**

Muechanga is a small island visible on the horizon from Mocimboa da Praia town. Apart from a coconut plantation that still exists in the island, it does not have any significant history of permanent settlement. Muechanga is home to one of the largest migrant fishing camps in the area. The camp exists since 1982 but it was originally set up by local fishers from Mocimboa as a base to access the nearby fishing grounds. In 2002, migrant fishers started to arrive in greater numbers and the camp expanded. At the time of research there were approximately 400 fishers on the island, although this number is ever changing. Many fishers have brought their wives and small children. Most of the fishers in Muechanga originate from Nampula Province, including Nacala, Baixo Pinda, Muambacoma and Sirisa. There are also fishers from nearby Mocimboa. Some fishers used to come to a nearby island, Muisune, which has since been privatized for tourism.

There is an intense movement of fishers in the island. Fishers arrive in larger numbers during August and leave in November and December. Some stay for 2-3 months, others leave after a few days or weeks in their search for good fishing areas. There are also a

number of fishers who live semi-permanently on the island, some for up to five years long. These fishers are only away for short periods of time, either back at home or in nearby Mocimboa da Praia. The population of the island decreases significantly during the rainy season, from January to March when almost everyone leaves. Most food is brought in from the outside. Freshwater is brought from Mocimboa da Praia in gallons, on sail boats that specialise in the water business, but also transport people and goods.

According to migrants, the main reason for coming to this island is because it provides a base to access highly productive fishing grounds which are not easily reached from the mainland. It is also close to Mocimboa town which is an important market for fish. Fishers also said that it is easy to arrive and start fishing in the island. According to the local leader, fishers can build their shelters freely, where there is available space. They also do not require any specific permit. Many come to join others who were already fishing in the island. The migrant fishers themselves are aware of the need to have fishing licenses and to arrive with permission to migrate from their areas of origin, but according to the island leader, few actually have these documents.

The presence of large numbers of migrants in Muechanga has attracted the attention of the District Government of Mocimboa da Praia. In 2007, the District Administrator visited the island and found that the camp was disordered, fishers were building their huts anywhere they wanted and many had no permits. A leadership structure was set up upon his request consisting of 'village' leader, someone responsible for fishing affairs, another for law and order, and an OMM representative (Mozambican Women's Organisation). This structure was aimed at better managing the affairs of the camp, including the entry and permanence of fishers. However, this leadership structure is weak and has difficulties to enforce its authority and regulations. The camp had already an informal leader who was not integrated into the new structure created by the District Administration. Lack of legitimacy may be a contributing factor of its weakness.

Fishers in Muechanga sell their catches fresh to either trader/processors that dry the fish or traders from Mocimboa da Praia who visit the island on daily basis. The processors are often owners of fishing boats or *patrões*. Some processors sell the dried fish locally to visiting traders while others take the dried fish to sell in Mocimboa da Praia, in inland areas within the province and Nampula. Most traders/processors prefer to sell their fish on the mainland where they can get higher prices than those paid by visiting traders. Dried fish is sold in Pemba, Montepuez, Mueda, Nampula and Tanzania. Traders dealing in fresh fish in turn sell to other traders waiting at the beach, who then sell fish door to door on foot or on bicycles in the city and nearby rural areas. Others transport fish in cooler boxes on public transport to sell in Mueda, a nearby inland city.

According to migrant fishers, the main difficulty they face in the island is the lack of a primary school for children. They have asked the District Administrator to set up a school in the island, but according to a local source the government is unlikely to grant this request. This is because families are very mobile and many children would not

attend school for the full duration of the academic year. Others have also suggested that the establishment of a school would serve to consolidate the fishing camp into a permanent settlement which the government may not want to promote due to the on-going privatization of the islands for the establishment of tourism resorts.

## *COMOROS*

The Union of the Comoros is situated at the northern end of the Mozambique Channel, equidistant from continental Africa and Madagascar (Figure 3.1). It comprises three volcanic islands: Grande Comore, Anjouan and Mohéli. The islands host a number of ecologically important and vulnerable coastal habitats including coral reefs, mangrove forests and seagrass beds (Anasse et al. 2003, Ahamada et al. 2004), which support high marine biodiversity. The Comoros are currently facing extreme demographic pressures, 53% of the population is under 20 years old and the population is predicted to double within the next 33 years (Comores 2005). As an island state, with limited natural resources, these rates of growth are likely to result in serious environmental degradation unless mitigation measures and proactive management of natural resources are initiated immediately. These impacts are most likely to be experienced first in coastal populations, since the majority of the population lives on the coast and artisanal fisheries are of considerable economic importance (Abdoulhalik 1998).

The three islands that make up the Comoros differ in some respects. Anjouan is widely regarded as the most environmentally degraded of the three islands, with limited fishing grounds. It has a high population pressure. Table 3.6 shows the extent of fishing grounds around the three islands at two different depths. Grande Comore is the biggest island and it is also the site of the Comorian capital of Moroni. Its western coast is one of the most densely populated areas of the Comoros and Moroni originally grew up around the port located there. Moheli is the smallest of the islands. It is also the island with the least degraded coral reefs, and also the only one of the islands which has a reef based fishery. The fisheries in Anjouan and Grande Comore are primarily pelagic fisheries.



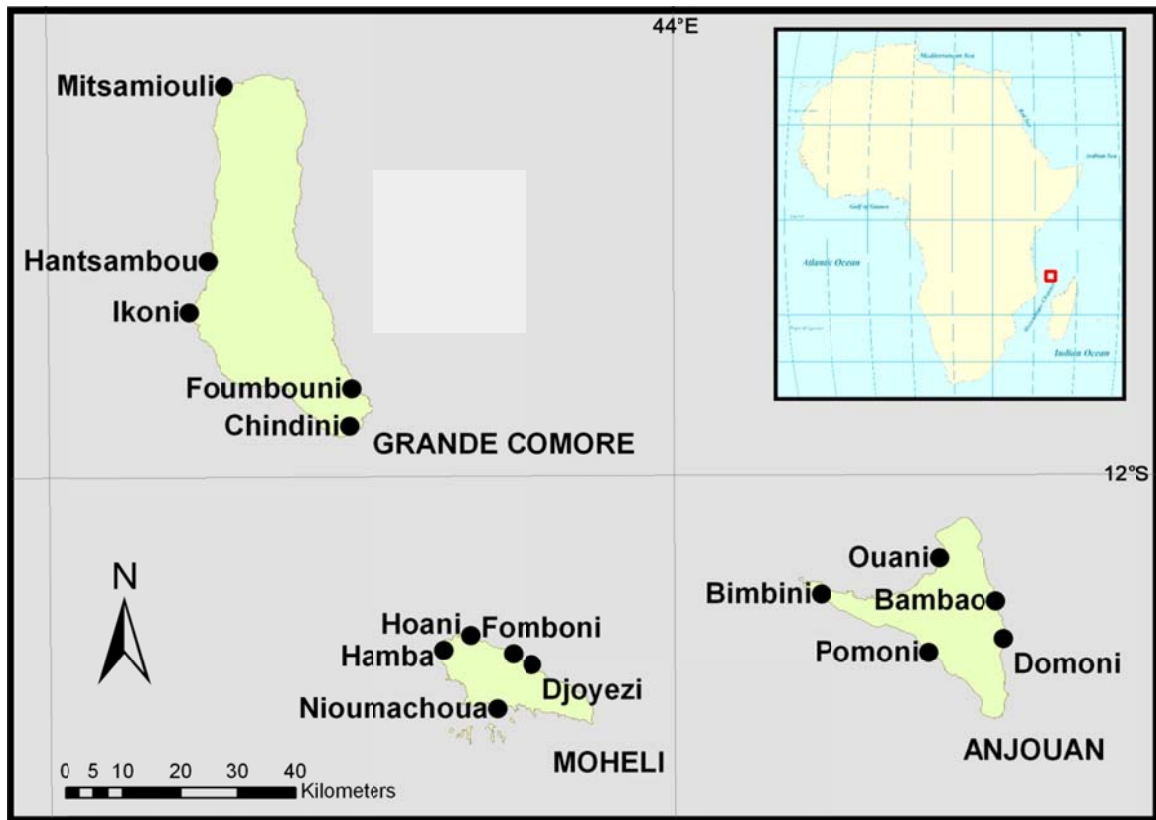


Figure 3.1. Detailed map of the Comoros, with a selection of sites visited marked on the map.

Table 3.6. Extent of fishing grounds at two depths around the three islands of Comoros.

	Areas of Fishing Grounds (km <sup>2</sup> )	
	0-100 m	0-200 m
Moheli	720	300
Anjouan	64	250
Grande Comore	300	350
<b>TOTALS</b>	<b>1,085</b>	<b>900</b>

Sources: 0-100 m depth, (Fisheries Resources Workshop), 100-200 m depth, (FAO/IOP 1979).

In Comoros a total of 111 key informant interviews were conducted. The exact sampling frame is outlined in Table 3.7.

Table 3.7. Sampling frame for collection of key informant data on Comoros.

<b>Key informant interviews</b>	<b>Site</b>	<b>Comment</b>
12 migrant fishers 15 local leaders 25 local fishers	Grande Comore	
8 migrant fishers 11 local leaders 11 local fishers	Moheli	
15 local leaders 14 local fishers	Anjouan	No migrant fishers were found at study site around Anjouan.

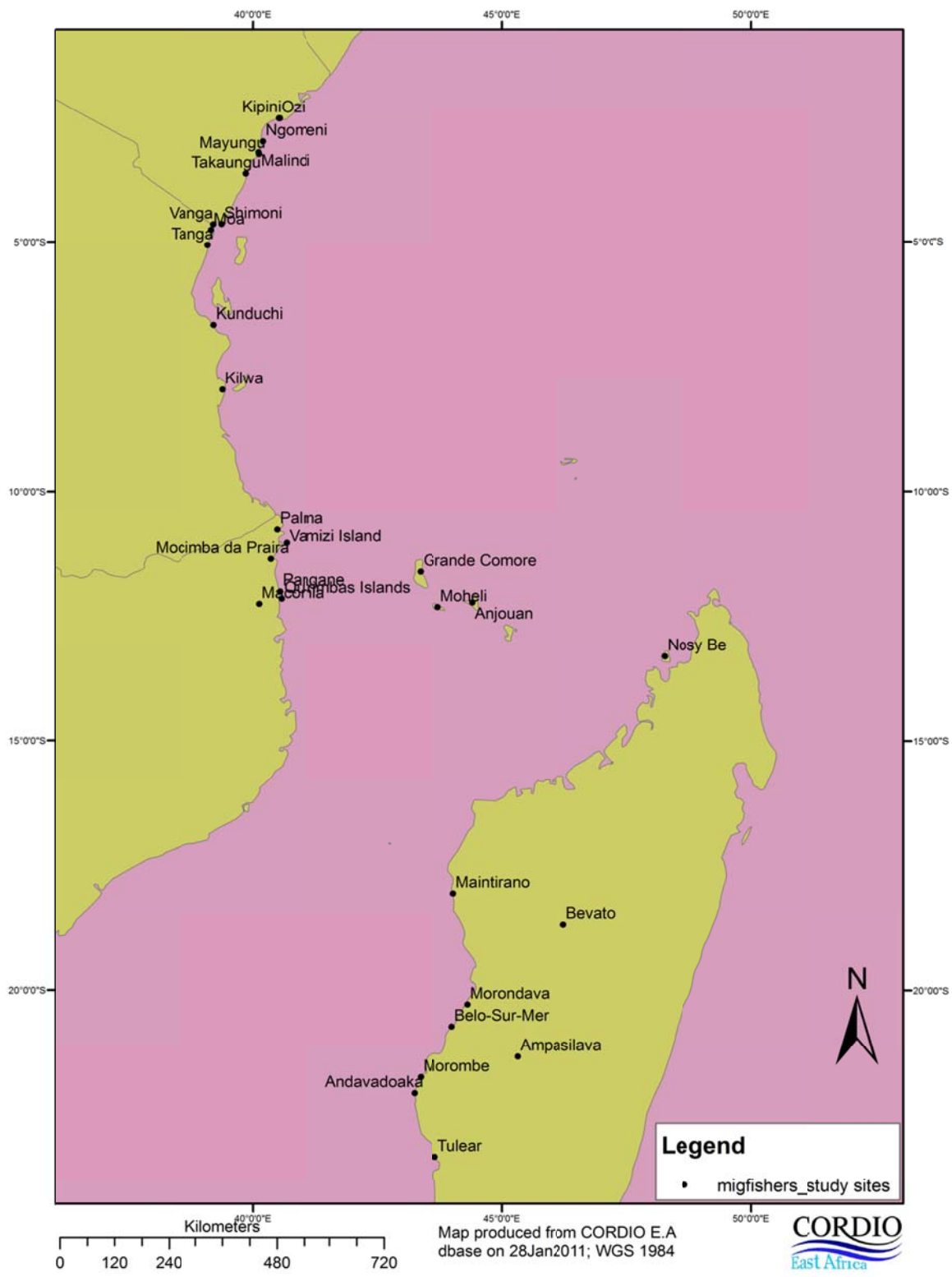


Figure 3.2. Map of Migrant Fishers Study Sites in all the countries investigated.

### **3.2 Methods of data elicitation**

The literature review and the conceptual framework outlined in the previous section provided the theoretical and conceptual basis upon which the instruments and guidelines for data collection were designed. A project inception workshop was held in January 2009. During this time the survey instruments and interview guides for key informant interviews were refined and cross-checked against the conceptual framework to ensure data would be collected for all aspects of the framework. Because the phenomenon of fishers migration was deemed to be highly complex both quantitative and qualitative methods were used. Quantitative methods, in the form of surveys, were designed to elicit data across a larger section of the populations of migrant and local fishers at each site, and to be able to examine relationships between e.g. demographic characteristics of fishers and their migration patterns, attitudes or other relevant variables on which data was collected. Qualitative methods included key informant interviews as well as focus group interviews in some of the sites. A database was created in which all survey data was entered. For each site data was also collected on general demography of the site/village, fisheries related characteristics of the site/village, facilities and organizations at the site/village, and ecological and geographic descriptions of the site/village. This was also entered into the database. All survey instruments and site description forms are appended in Appendix B.

#### *Survey instrument*

The survey instrument was structured around the conceptual framework described above. Two types of surveys were designed; one for migrant fishers and one for local fishers. The questions were organized under a number of subheadings. For migrants these included: Factors driving migration (causes), Migratory patterns, Factors influencing destination choice (migrant selectivity), Impact on host communities, Social and economic issues facing the migrants, and demographics. For locals, they included: Fishing operations, Impact on host communities, Social and economic issues facing local fishers, and Demographics. A large number of the questions in migrant and local surveys were the same so as to allow for comparison across the two sample populations.

#### *Key informant interviews*

Semi-structured key informant interviews were conducted using an interview guideline structured around different themes. Interview guidelines were developed for key informant interviews with migrants, local fishers, local elders and village leaders, and local government officials (e.g. fisheries officers, immigrations officers). The themes covered by each respective interview guide were adjusted to focus on those issues we judged each key informant type could most reliably provide information on. The themes covered (irrespective of key informant type, and not listed in any particular order) were: migration patterns (frequency, location and duration; changes in patterns over time); decisions to migrate (social, economic, ecological motivations to migrate; push, pull

factors); the migration process (how do migrants arrive in their host communities); fishing operations; social organisation (of migrants); relations with host communities / integration; perceived impacts of migrant fishing, history of the village; local governance and management; attitudes and views of locals towards migrant fishermen; history and organisation of co-management bodies; aims, mandates and responsibilities of local governance bodies; policy of local governance bodies towards migrant fishermen; implications of migrant fishing for policy and management.

To be able to capture the routes as well as both spatial and temporal dynamics of migration patterns key informant interviews with migrants included a mapping component during which respondents were asked to describe their movements (related to fishing) over the course of the last (or a typical) year. To facilitate the elicitation of data circular calendars were used, which included the Islamic calendar (Mfungo 1 to Ramadan). On these diagrams the times and places of migration were indicated. An example of a transcribed version of such a diagram is shown in Figure 4.4 (Section 4).

### **3.3 Data analysis**

Key informant interviews were analysed by synthesizing and coding the data gathered under each theme and relating it to the thematic areas of the conceptual framework. Coding of open ended questions in the survey was done with representatives from each of the countries where surveys were collected to ensure coding accuracy and reliability. This entailed three steps. First, all open ended questions were reviewed (across surveys from all countries) and relevant themes were identified. Secondly, the questions were coded using these themes. Thirdly, to avoid a large number of codes, the codes were consolidated into a smaller number of code categories by grouping similar codes under categories. This was done to facilitate synthesis and analysis and allow for detection of more general trends across countries. Both codes and code categories are used in our analysis. Quantitative exploration of the survey data was done using Excel and Access.



Migrant fishing crews moored in Kunduchi, Dar es Salaam, Tanzania (Photo: B Crona)

## 4. Characterization of migrants and migration patterns in the Western Indian Ocean region

### 4.1 Different types of fishers movements – arriving at definitions of fishers' migration

Even a brief scan of the literature reveals migration as a ubiquitous feature of most small-scale fisheries (SSF) across the world (e.g. Overå 2001, Kramer et al. 2002, Marquette et al. 2002, Aburto et al. 2009, Njock and Westlund 2010). However, as pointed out by several scholars (Curran 2002, de Sherbinin et al. 2008), migration is an extremely complex phenomenon and therefore a clear terminology around what constitutes different types of migration is essential in order to assess its causes and impacts. The fisheries literature commonly distinguishes three dimensions: scale, pattern and duration. These dimensions are similar to those identified in the migration literature in general (Randall 2005). In an attempt to summarize the fishers' migration patterns in West Africa Njock and Westlund (2010) outlined six types: International migration: Internal migration: Short-term migration: Seasonal; Long-term; permanent; contractual; stop-over. These are not mutually exclusive categories; rather they describe different spatial and temporal aspects of the observed migration patterns.

For example, internal migration can be short-term or long-term, permanent or seasonal (Njock 2010), although in both West and East Africa internal migration appears to be largely associated with seasonal movements (Fulanda et al. 2009, Njock and Westlund 2010).

At the same time, seasonal migration can span territorial boundaries. This is frequently the case in West Africa where seasonal upwelling events affect fishing patterns of the majority of small-scale fishers along the coast (Marquette et al. 2002, Njock and Westlund 2010). But seasonal, transboundary movements also result from avoidance of regulations (Njock and Westlund 2010), search for markets (Overå 2001, Marquette et al. 2002) or other economic opportunities such as credit access (Nunan 2010).

Long-term or permanent migration of fishers have also been documented, particularly in West Africa where fishers from Benin, Ghana and Nigeria moved to Cameroon, Congo and Gabon in the south of the Gulf of Guinea many years ago and have remained there for several generations (Njock and Westlund 2010).

Finally the type of fishing operation and modes of employment to some degree determine the migration type. Contractual agreements are increasingly important in small-scale commercial fisheries. Transboundary migrants working on purse seiners in West and East Africa often work under contractual agreements, while those using gillnets or long-lines tend to do so under other conditions (Fulanda et al. 2009, Njock and Westlund 2010). Similarly, in Indonesia migration to urban areas is associated with contracts on larger fishing vessels, while rural settings attract small-scale independent fishers (Kramer et al. 2002, Cassels et al. 2005).

In summary, context appears to play a major role in determining migration type and the complexity of the reasons behind it makes it difficult to provide any neat categorization of the phenomenon. The movement of fishers in the WIO region is complex and varies from country to country. It is therefore very difficult to generalize around migratory patterns. We have therefore chosen to present our data on migration patterns under country specific sections where the patterns observed for individual countries and sites are detailed. A comprehensive table listing all the destinations cited by migrant fishers during our surveys, can be found at the end of the report (APPENDIX A).

## **4.2. Fishers' migration patterns in the Western Indian Ocean region**

### **KENYA**

#### ***Destinations and origins of migrant fishers in Kenya***

Migration occurs both within Kenya and from neighbouring countries into Kenya. The destinations most frequently cited by Kenyan migrating fishers were sites within the districts of Lamu, Tana Delta, Malindi and Kilifi, including Kipini, Ozi, Mayungu, Ngomeni, Takungu and Watamu. Tanzanian fishers are known to frequently enter Kenyan waters to fish. The destinations most frequently cited by Tanzanian migrants were the districts of Msambweni (Gazi, Shimoni, Vanga, Jimbo), Tana delta (Kipini, Ozi and Ziwayuu), Malindi (Malindi, Watamu, Mayungu, Ngomeni) and Kilifi (Takaungu, Mnarani). But many Tanzanian destinations were also listed by these fishers. The most cited of these were Dar es Salaam (Kunduchi), Pemba Island, Tanga, and Unguja Island. Table 4.1 lists all destinations mentioned by migrants (Kenyans and Tanzanians) interviewed in Kenya. It is important to note that this list of destinations should not be seen as exhaustive; it represents only those destinations cited by respondents from the sites where the survey was carried out.

Surveys and interviews with fishers in Kenya indicate that foreign migrant fishers along the Kenyan coast come from a wide range of origins, including the islands of Pemba and Tumbatu, as well as mainland Tanzania. Kenyan fishers also migrate to other areas within the country, and a pattern can be discerned where fishers from Lamu migrate south to Kipini, while fishers from the south coast tend to move north during the North East Monsoon season to seek calmer fishing waters. The map in Figure K1 shows the origins and destinations of migrants surveyed and interviewed.

Table 4.1. List of destinations cited by migrants surveyed along the Kenyan coast. KE represents migrants of Kenyan origin, while TZ are migrants of Tanzanian origin.

	Place	# citations	
		KE	TZ
KENYA	Kenya (unspecified)	3	3
	Diani-Chale	2	
	Gazi	3	3
	Kilifi	1	3
	Kipini	3	8
	Lamu	9	2
	Malindi (incl. Watamu)	11	24
	Msambweni	2	4
	Shimoni-Vanga	3	13
TANZANIA	Bagamoyo		2
	Dar es Salaam	1	11
	Kilwa		3
	Mafia	1	6
	Mtwara		1
	Pemba	1	14
MOZAMBIQUE	Mozambique		1
	Pemba		1

Migration is not constant throughout the year. Data shows that the largest mobilization of fishers tends to occur between October and April (i.e. during the North East Monsoon) and most migrating fishers tend to migrate for 3-4 months at a time. This appears to be true for migrants arriving both from Tanzania and other places in Kenya and this general trend was found across all Kenyan sites. However, deviations from this general pattern can be seen. For example, in Shimoni, migrants arrive twice a year. Basket trap (madema) fishers arrive during the North East Monsoon (Kaskazi) and stay for 2-4 months. During Kaskazi winds blow from the North and the Ramisi river has a much higher outflow, bringing lots of sediment and dispensing it in the shallow water. This is good for the fishers using madema traps, (many of which come from Zanzibar and Tumbatu. It is less good for those based in Shimoni diving for fish and octopus as visibility is greatly reduced, and consequently many of them in turn migrate north along



the Kenyan coast. Shark net (jarife) fishers, targeting mainly king fish, arrive during the South East Monsoon (Kusi) and stay for 2-4 months. We thus see that migration appears to be strongly related to the gears used and the type of fish targeted, and this in turn dictates choice of time and area of migration.

The available data does not allow for a quantification of the flow of migrants from specific locations. However, we asked survey respondents to estimate the proportion of the fishers in their home communities who migrate. This type of data necessarily has to be interpreted with caution, but it allows us an indication of the magnitude of migration flows from specific areas of origin. Using this information we see that...

The majority of migrants interviewed in Kenya came to the area of destination by boat (84%). Another 10% arrived using public transport while some combined the two means (3%). Most arrived as part of a fishing unit. It became apparent during interviews that for many migrants, particularly Kenyans from the South coast and Tanzanian fishers, the fishing units stop at a number of locations. Some of our respondents cited communities they had already visited on this migration trip, while others outlined their planned destinations for the near future. Choice of destination appeared to be largely determined by perceived fishing conditions and ability to earn a good income from fish catches at the chosen location (Figure 4.1). Forty-two percent of survey respondents cited this reason for choosing their destination. The second most commonly cited reason was that decisions on where to migrate to were largely decided by the captain of the fishing unit or a fish dealer with whom the fishing unit is strongly linked. Many traders act as agents, facilitating for migrants crews to come to Kenya. This is discussed in more detail in Section 7. Other reasons included availability of markets, infrastructure and the possibility of making a profit.

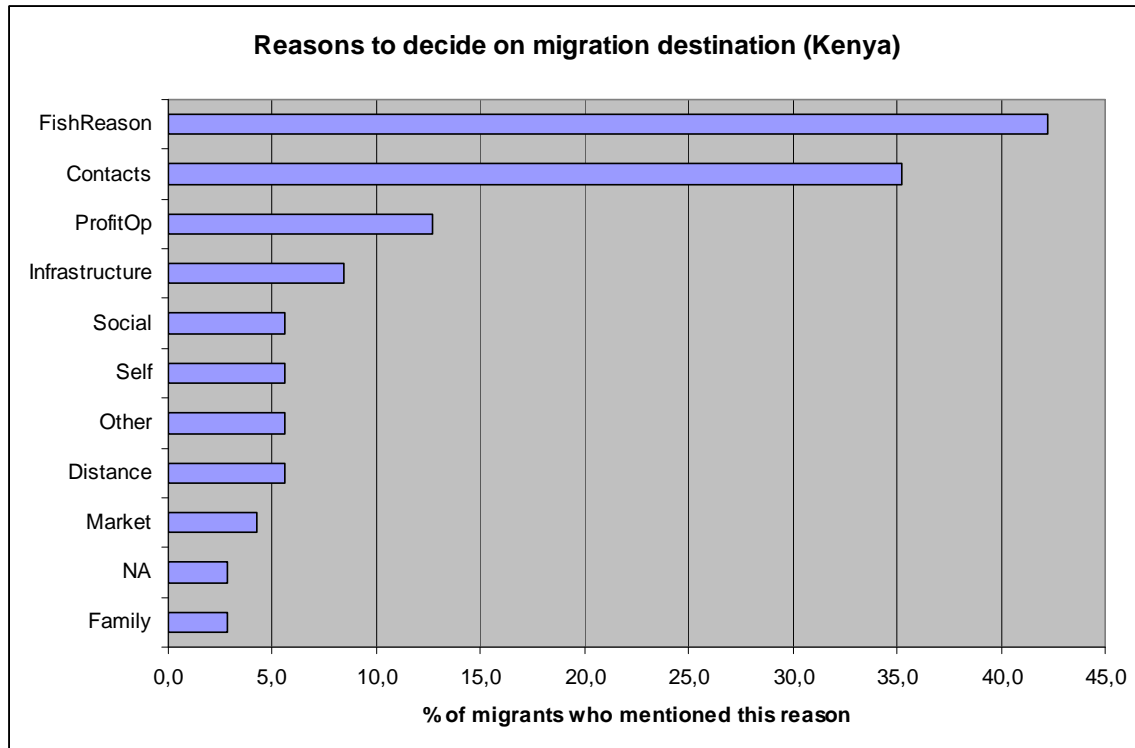


Figure 4.1. Reasons to decide on migration destination (Kenya).

Because of the lack of baseline data it is difficult to say anything conclusive about changes in migration over time. However, key informants in Takaungu claim that numbers of migrants have increase over the years and the village of Shimoni has increased in populations since migrants started arriving. A number of smaller settlements around Shimoni, such as Mbuyuni and Kichaka Mkwaju, almost half the population are reportedly of Pemba origin, but now living permanently in this area. The 2009 population and housing census report may confirm this but has yet to be released. Most of these resident migrants do not possess the required documents for Kenyan citizenship registration. Gazi is another one of the locations receiving a significant amount of migrants every year; between 200-300 migrant fishers. These reportedly come from Shimoni and Vanga, but also from Pemba Island. It is important to note however, that ‘Pemba’ or ‘Kojani’ (one of the small islands off Pemba Island) is a term used generally by Kenyans to describe Tanzanian migrants. This creates some confusion as there appears to be more variation in the actual origins of migrants than these terms would indicate. Our survey data indicates that 44% of migrants are first time migrants, i.e. this was their first trip to the specific location in which they were interviewed. It does not mean that they have not migrated before but our data cannot speak to this issue.

#### *Age, ethnicity and marital status*

The average age of migrant fishers surveyed in Kenya was 33.4 years, with a median of 32 years. The oldest migrating fisher was 60 years old and the youngest merely 16 years.

The vast majority are married. A wide range of ethnicities are represented among migrants. Kenyan migrants surveyed represented Digo, Giriama, Kifundi, Bajuni, Swahili and Shirazi. The large majority of migrants of Shirazi and Swahili ethnicity, however, were from Tanzania, particularly from the island of Pemba and Kojani. The island of Tumbatu was also well represented (Table 4.1).

Table 4.1. Demographics of the Kenya migrant fishers sample

Total sample size:	71	
Average age:	33.4	
Minimum age:	16	
Maximum age:	60	
Marital status:	Married	77.5%
	Single	16.9%
	Divorced/Separated	5.6%
Average n. of children:	<=18	2.18
	>19	0.79
Education:	Never gone to school	39.4%
	Primary	53.5%
	Secondary	5.6%
	Madrassa	52.1%
Ethnicity:	Swahili	31.0
	Shirazi	19.7
	Tumbatu	12.7
	N/A	9.9
	Bajuni	7.0
	Digo	5.6
	Giriama	2.8
	Msegejo	2.8
	Other	8.5

### *Vessels, crew size and gears used*

The survey data is not comprehensive enough to allow firm conclusions regarding differences observed between local and migrant fishing operations. Nonetheless the trends shows that a majority (69%) of migrants surveyed operated using larger vessel types, such as 'mashua' (wooden sailing vessels), which is also confirmed by qualitative data. The size of these larger vessels averaged 11 meters and did not differ significantly between locals and migrant fishers. Key informant interview nonetheless suggest migrant fishers use more motorized boats. For example, migrants from Pemba use bigger outrigger and wooden boats with engines and sails, quite different from locals who use smaller boats and dugout canoes. The average size of migrant crews surveyed was 7.5 and the proportion of migrant fishers in these crews averaged 87% compared to only 31% of migrants in local crews. This indicates that fishing operations descending

temporarily on local communities rely only marginally on local fishers as crew, bringing into question the issue of potential skill and knowledge transfer from migrants to locals.

Overall, beach seines were more frequently used by migrant fishing units, as were shark nets and different types of fishing lines. Only marginal differences in the use of ring nets between locals and migrants were observed (47% locals vs 53 % migrants). It is worth noting that there are some notable differences in gear use among migrants across localities, with higher use of line in North coast sites of Kipini/Ziwayuu, and dominance of shark nets among migrants operating on the South coast. This is partly explained by differences in the ecology across sites, where northern fishing grounds like Kipini are more open pelagic, while Southern sites like Vanga and Shimoni are dominated by reefs. As fishers tend to move along the coast according to season this may also simply be a result of our time of sampling and not a persistent pattern over time.

An important observation related to gear use is that there are differences in deployment techniques between local and migrant fishers using the same gear types. For example, it was noted that traps, which are normally used by locals in shallow waters such as seagrass beds or on reefs, were used by migrants in Kipini, in deeper water by suspending them mid-water. In Vanga traps used by migrants were reportedly larger and used in deeper waters compared to locals. Similarly, key informants in Shimoni described how migrants tended to more often deploy gillnets as drift nets further out at sea, compared to locals who used them as set nets in the lagoon or vicinity of the reef. The 'Pemban' way of letting the jarife net drift over wide areas allows it to catch a lot more of fish. Key informant interviews also indicate that migrant crews use longer, nets and larger traps than locals, similar to other sites.

### *Fishing effort, catches and target species*

On average, migrant fishers spend 7.7 hours/day fishing compared to locals who spend an average of 6.0 hours/day. This results in an overall fishing effort which is higher for migrant (188 hours/month) compared to local fishers (150 hours/month). Although somewhat higher for migrant fishers, reported catch on a poor, as well as a normal day, differs only marginally. However, reported catches on a good day are strikingly higher for migrants (514 kg compared to 154 kg) and indicates that on average migrant fishing units have the potential to catch significantly more than local crews.

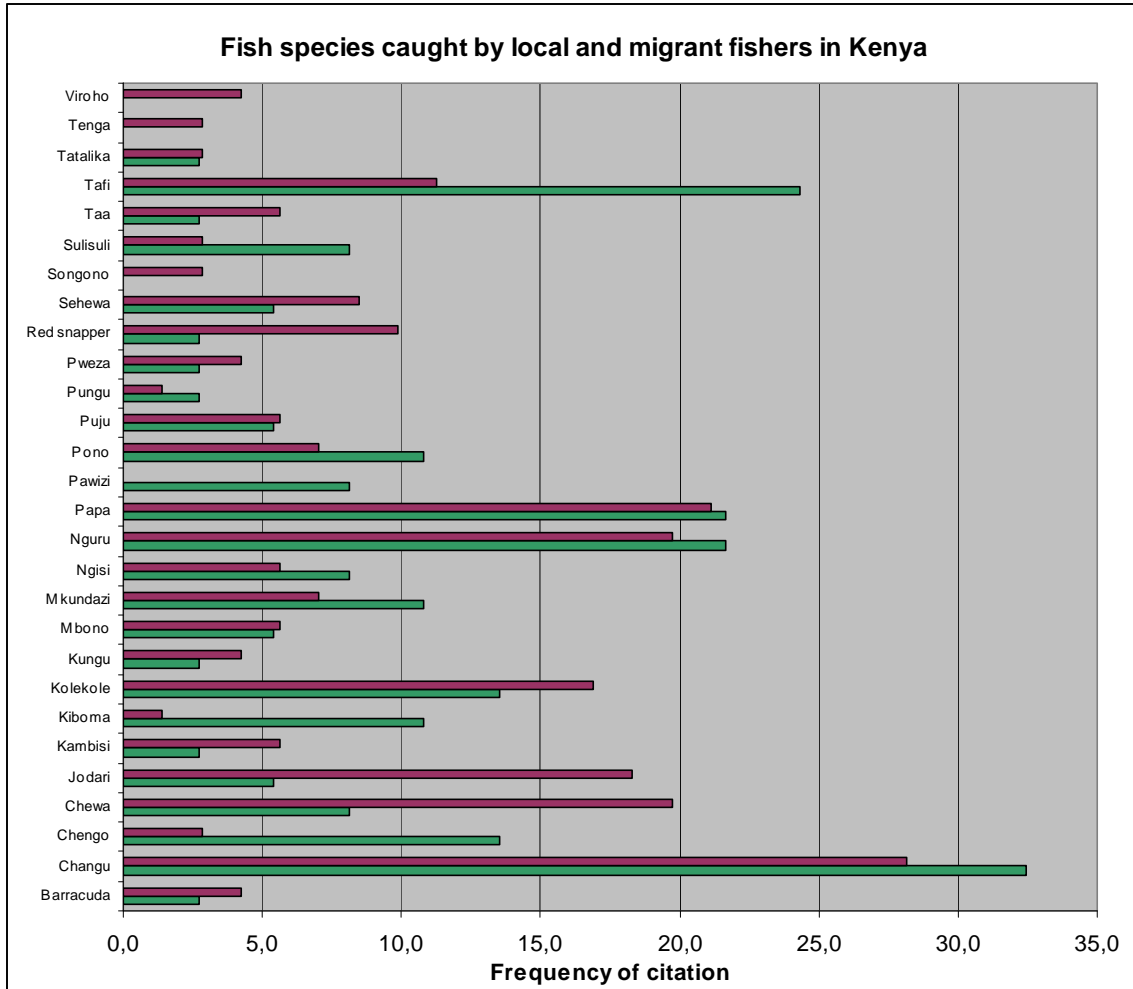


Figure 4.2. Fish species caught by local (green bars) and migrant (red bars) fishers surveyed in Kenya (across all sites). Frequency of mention is given in % of total local and migrant sample respectively.

If we look at the species actually caught (as reported by survey respondents) we see that there is a difference between migrants and locals for certain species (Figure 4.2). While the proportion of locals (green bars) who report catching tafi (Siganid) and chengo (Lethrinid) is much higher than for migrants (purple bars), migrants report catching more jodari (Carangid), chewa (Serranid) and red snapper (Lutjanid). This could be the effect of migrants using more shark nets, which catch not only sharks, but also larger pelagics, such as jodari and chewa. Furthermore, migrants to a larger degree report targeting open water compared to locals (Figure 4.3), while many locals operate on the sand and mudflats sheltered by the reefs. For the remainder of species caught there is no apparent difference between fishers at the general level. However, in some sites, such as Kipini, there is a clear differentiation between local and migrant fishers, and also among groups of migrants from different areas. There migrants from Tanzania target primarily lobster and octopus, Kenyan migrants from Watamu target lobster and

migrants from other locations in Kenya target primarily shark and red snapper. Key informants suggested that in general migrant crews tended to target so called 'Grade A' fish only, i.e. fish that fetches a high market price.

We also asked local and migrant fishers to what degree they fished in the same fishing grounds and found that across all sites in Kenya the large majority of both locals and migrants reported fishing in the same areas (on average 84% of locals and 75% of migrants). Shimoni was the only site where there appeared to be marginally more differentiation between areas used, and where only 59% of migrants reported fishing in the same grounds as locals and 9% and 14% said they did it only rarely or sometimes respectively.

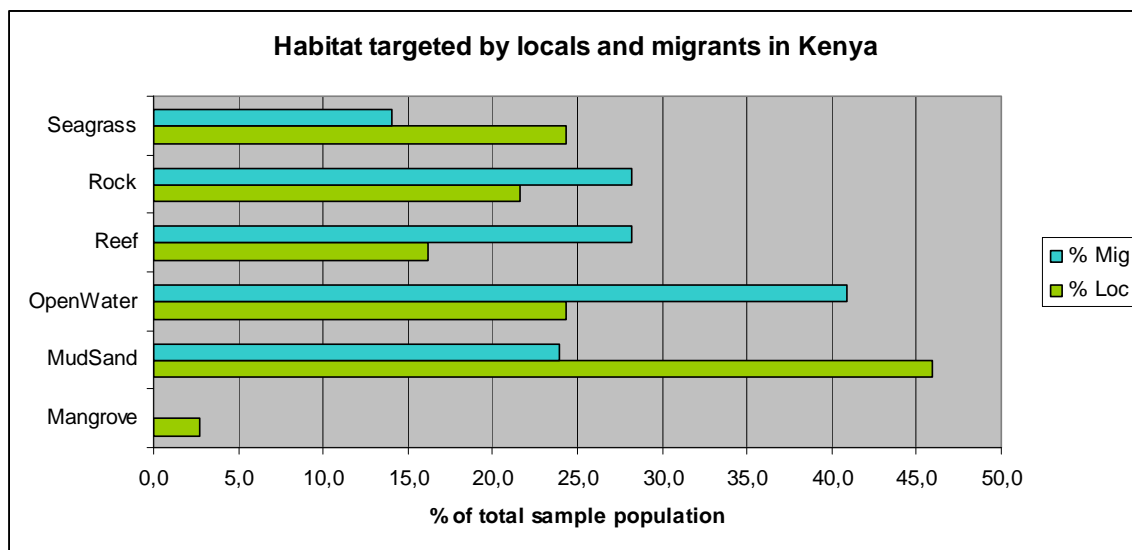


Figure 4.3. Habitat targeted by migrant and local fishers in Kenya

## TANZANIA

### *Destinations and origins of migrant fishers in Tanzania*

Migrant fishers in Tanzania cited a number of other migration destinations, which are listed in Table 4.2. It is clear from the cited destinations that Tanzanian fishers also migrate to Kenyan sites. The ones identified in this study include Gazi, Msambweni, Shimoni, and Vanga on the south Coast and Mombasa and Malindi further north. No non-Tanzanian migrants were identified through our surveys in Kunduchi or Moa. This of course does not preclude their presence but our random sampling did not capture it.

Of the 40 migrants surveyed in our two Tanzanian sites 38% were from Zanzibar (Unguja) or Tumbatu, 35% originated from Pemba or Kojani, while 5% came from other

places. This indicates a dominance among Tanzanian migrants of fishers from the Tanzanian islands, but again, the generalizability of these figures cannot be verified.

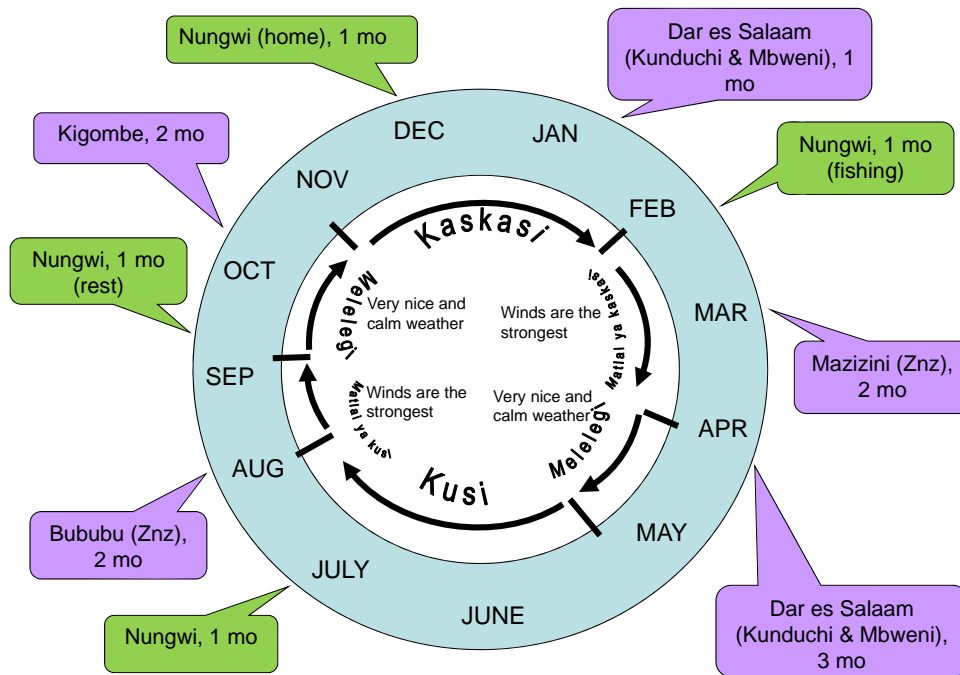
Table 4.2. Migration destinations cited by migrants in Tanzania.

Interview Site	Destination	TZ citizen
Kunduchi	TZ-Bagamoyo	6
	TZ-Dar es Salaam	4
	TZ-Kilwa	2
	TZ-Mafia	4
	TZ-Tanga	4
	KE-Mombasa	1
	KE-Shimoni-Vang	4
	Unknown	9
Moa	TZ-Bagamoyo	3
	TZ-Dar es Salaam	6
	TZ-Mafia	1
	TZ-Mkuranga-mai	1
	TZ-Tanga	7
	TZ-Unguja	10
	KE-Gazi	4
	KE-Malindi	6
	KE-Msambweni	1
	KE-Shimoni-Vang	8
	Unknown	5

Fifty percent of migrant fishers in Kunduchi, and 43% of those in Moa, stated that this was not their first time migrating to this site. Hence, 93% of migrants surveyed are return migrants. This indicates that migration for fishing purposes is something that is repeated over the years. The exact patterns of migration, however, appear to differ significantly between fishers, possibly depending on their type of operations (i.e. type of gear and boat), as well as other factors not investigated here.

These differences became evident in several ways. First, one group of fishers tended to define their stay in terms of days, and the average stay was 21 days. Another group defined their stay in terms of months, and the average length of stay was around 3.5 month. Although our sample is small, there is a tendency among the fishers who define their stay in days to indicate that they return to the interview site every month (84%), while those who define the duration of their stay in months tend to return between 1-3 times per year (100%). It was more difficult to tease out any patterns regarding the specific times and seasons for migration. Among fishers who return every month there is a fairly even distribution among those who state they return during Kusi (SE monsoon), bamvua (the time of the month of high tide), and during the dark time of the month. It is very possible that these three ways of describing the season for return migration are related, but our current data does not allow us to clarify this relationship.

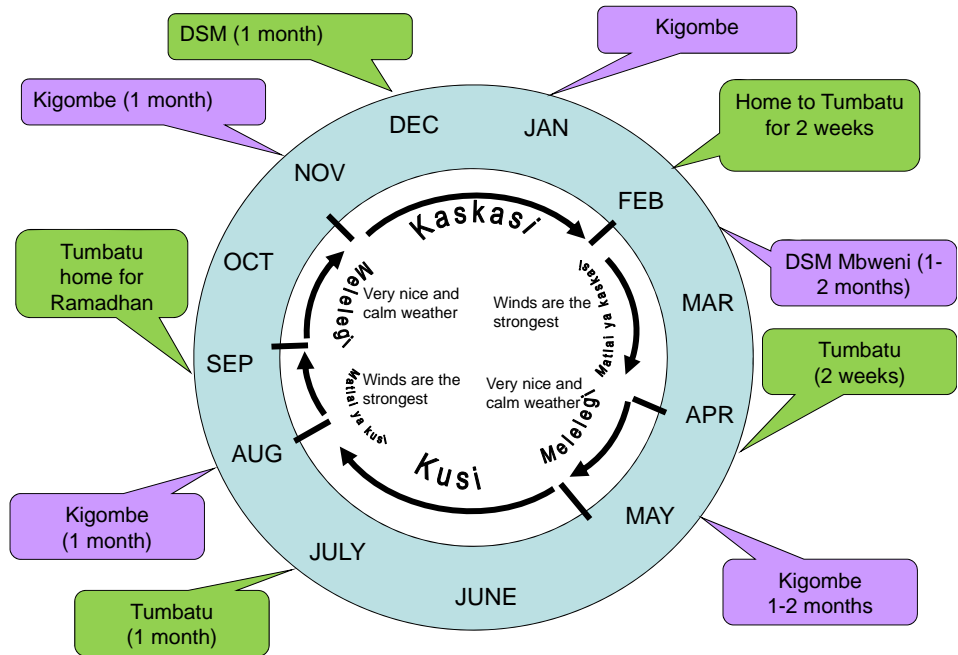
Among fishers who return only a few times a year, most state that they either return during Kusi or Kaskazi (NE monsoon). The most cited reason for arriving in any given time or season, given by the majority of fishers was 'good fishing season', followed by the fact that calmness of the sea.



KI #3 migrants in Kigombe

A





KI Migrants in Kigombe #1

B

Figure 4.4. Diagrams showing the migratory patterns of two different migrant fishers in Kigombe over the course of a year.

The variability in migration patterns and seasons is not fully captured by this study due to a limited sample, but Figure 4.4 A and B illustrate the migratory patterns of two migrants interviewed in Northern Tanzania. One is from Tumbatu and the other from Nungwi, on Zanzibar. These diagrams illustrate the complexity of migratory movements. Migrant fishers often appear to travel back and forth from home at different intervals and with different destination, depending on the season. For example, Figure T1.a shows that Dar es Salaam is only targeted during Kaskazi, while Kigombe (South of Tanga) is targeted during Kusi.

In terms of transport to and from areas of destination, 50% of migrants state they travel to their destination by boat but fail to specify the type vessel. Forty-three percent come by fishing boat (the boat/crew with which they fish), and 7% arrive by passenger vessel. As can be seen in Table 4.3 most migrants cited good fishing as the primary reason coming to a specific site. A surprising amount of respondents also felt it was important whether the area of destination was nice or not, but none ranked this as the most important reason. Families and friends, as well as traditions were the next most cited reasons for choosing a place of migration.

Table 4.3. Migrants' reasons for choosing to come to Kunduchi and Moa.

Reason	Number of citations	Number cited as most important reason
Good fishing	28	13
Nice place	13	0
Family or Friend	7	2
Tradition	7	1
Other	4	0
Economic reason	3	2
Improve Life	3	2
Explore	1	0
NA	1	0
Near Home	1	1

### *Age, ethnicity and marital status*

The average age of migrants surveyed in Tanzania was 37.2 years with a median of 35 years. The oldest migrant was 61 years while the youngest surveyed was 20. The majority (85%) are married, and of these 20% are polygamous, with two wives. A wide range of ethnicities are represented among the migrants, representing Shirazi, Tumbatu, Pemba, Digo, Zanzibari, and Mazrui in descending order of importance (Table 4.4).

Table 4.4. Demographics of the Tanzania migrant fishers sample

Total sample size:	40	
Average age:	37.2	
Minimum age:	20	
Maximum age:	61	
Marital status:	Married	85%
	Single	8%
Average n. of children:	<=18	3.4
	>19	2.5
Education:	Never gone to school	20%
	Primary	38%
	Secondary	28%
	Other	15%
Ethnicity:	Shirazi	38%
	Tumbatu	15%
	Pemba	10%
	Digo	8%
	Zanzibari	5%
	Mazrui	3%
	Other	15%

### *Vessels, crew size and gears used*

A preliminary analysis of the data shows some differences between locals and migrants in terms of the vessels used for fishing (Table 4.5) . Although there is significant overlap, locals are the only ones to use Mtumbwe, or dug-out canoes, while boti – which a term that tends to denote both glass fibre or wooden (flat-bottomed) vessels with an engine – is only used by migrants. Only 25% of the sample of local respondents had any form of engine – outboard engines mounted on mashuas – while around 68% of migrants had vessels with engines (of which only 2.5% were inboard engines).

Table 4.5. Vessels used by migrants and locals, given in % of total population

Boat type	Local	Migrant
Dau	20	15
Mashua	35	25
Mtumbwe	5	0
Ngalawa	40	20
Boti	0	40

If we expand our analysis to also include gear we can see some interesting patterns. Our data collection does not allow us to tease out the exact combination of gear and vessel but we can calculate the percentage of fishers who cite using a certain type of vessel as well as the gears they use. From this we can see that beach seines are primarily used by local fishers (16% locals versus 2.5% migrants), often in conjunction with mashuas or daus. Hook and stick is also used mostly by locals (16% locals versus 2.5% migrants), as is shark nets (21% locals, 5% migrants). Line is used to the same extent by both locals and migrants (42.5%) and most fishers appear to combine this gear with use of ngalawas. Purse seines is a gear type more commonly found among migrant operations (15% locals, 30% migrants), and while locals use only mashuas for this type of fishing, a big portion of migrants use motorized vessels (boti) for this fishing.

In terms of crew size and composition there are also some differences between local fishing operations and those of migrants. The average size of the crews tended to be somewhat larger for migrant operations in both Kunduchi and Moa (Table 4.6), and in both places migrant fishers made up 90% of the migrant crews while they represented only 20-30% of local crews.

Table 4.6. Average crew size and proportion of crew members that are migrant fishers on local and migrant operations.

Site	Average crew size		Average Proportion Migrants	
	Local crews	Migrant crews	Local crews	Migrant crews
Kunduchi	11.4	16.6	0.3	0.9
MOA	4.3	5.6	0.2	0.9

### *Fishing effort, catches and target species*

Migrants appear to spend somewhat more time at sea than locals. In both sites investigated this pattern was evident. In Kunduchi, locals spent on average 188 hrs/month while migrants fished 227 hrs/month. In Moa locals spent on average 191 hrs/month while migrants fished 198 for hrs/month. Examining the self-reported catches of migrants and locals, there are some discrepancies which mirror those found among sites in Kenya. Reported catches on a good day are not very different, but the average catch on normal days for migrants (204 kg/day) is almost four times that of local fishers (61 kg). Catch on a poor day does not differ. However, this does not automatically translate into higher ecological impacts of migrant operations, as many of these tend to target more pelagic, schooling stocks which allow for larger catches.

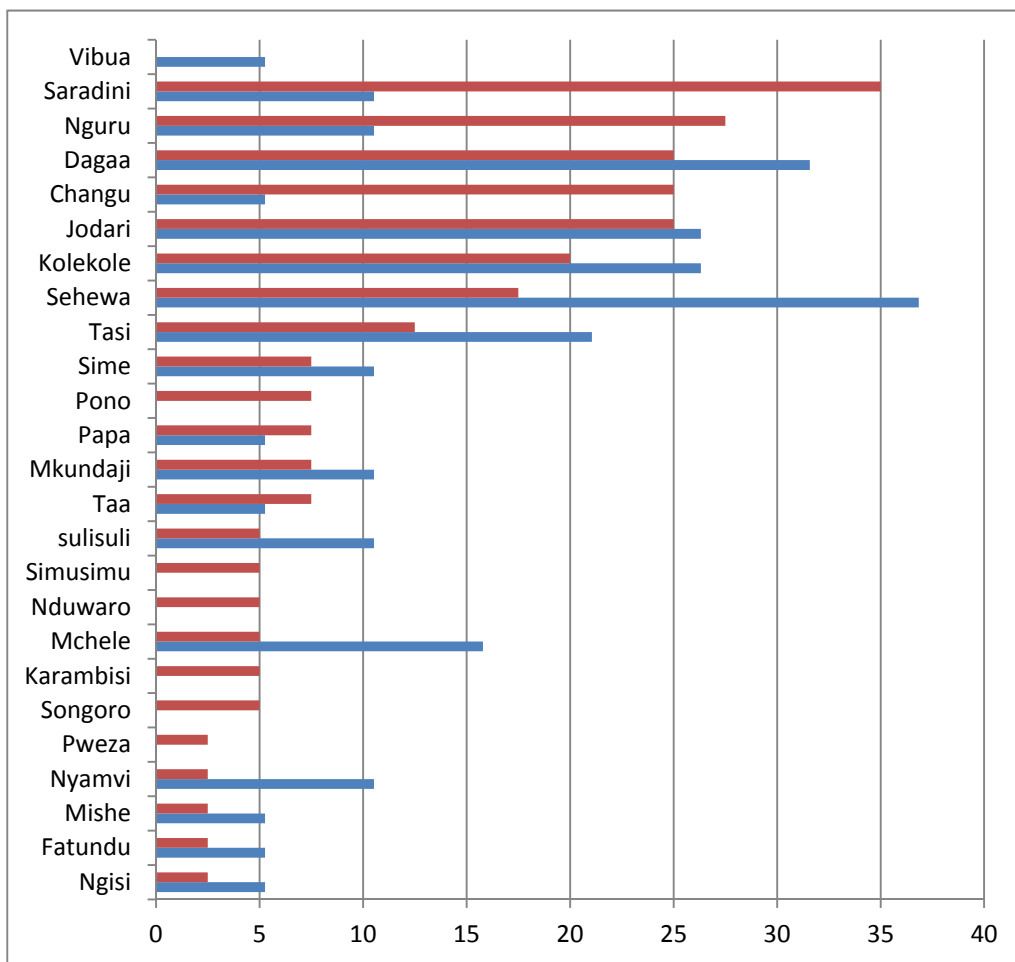


Figure 4.5. Fish species caught by local (blue bars) and migrant (red bars) fishers surveyed in Tanzania (across all sites). Frequency of mention is given in % of total local and migrant sample respectively.

Examining the species caught, as reported by local and migrant fishers surveyed in each site, there are some striking differences between locals and migrants for some species

(Figure 4.5). For example, a number of pelagic species, such as sardines, or other small Clupeids (simusimu), as well as squid (ngisi) are mainly caught by migrants. Nguru also known as Kingfish (Scombridae), and mostly pelagic species, is also mostly caught by migrant fishers. However, other equally pelagic species, such as Sehewa (also a Scombrid) are mostly caught by locals. It may be that these species are associated with somewhat different fishing grounds but this is not supported by our data. Species like tafi (Rabbit fish), which are mostly caught by traps, are more frequently cited by local fishers.

The habitats targeted by local and migrant fishers are broadly similar but differ with regard to two habitats in particular (Figure 4.6). Local fishers appear to more consistently target rocks and also mud or sand flats. These habitats are less used by migrant fishers who instead target open pelagic waters more frequently. It is interesting to note that these patterns are strikingly similar to what was found in Kenya, where locals also dominated mud and sand flats while migrants targeted the open water.

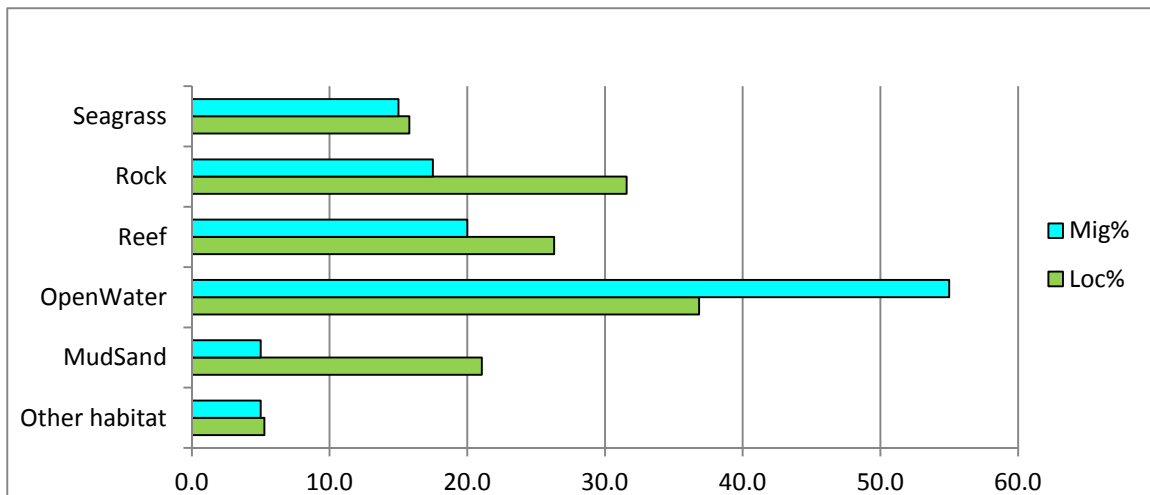


Figure 4.6. Habitat targeted by migrant and local fishers in Tanzania.

## MOZAMBIQUE

### *Destinations and origins of migrant fishers in Mozambique*

Like in other countries in the region, migration of fishers in Mozambique occurs both internally and from neighbouring Tanzania into Mozambique<sup>2</sup>. At our study sites, local fishers reported the presence of fishers from other parts of Cabo Delgado Province; from areas in neighbouring Nampula Province up to 300 kilometres south; and from

<sup>2</sup> There also Mozambican fishers in Tanzania, particularly in Mtwara and vicinity, but their presence is related mainly to cross-border family links and trading activities (per. observation of S. Rosendo).

Tanzania. Interviews conducted at all 4 sites lead us to believe that the most important migratory flow in terms of numbers is of Mozambican fishers from Nampula Province, although our study was not able to quantify it. There are also significant internal movements of Mozambican fishers within Cabo Delgado Province. This includes fishers from Pemba and Mecufi, located some 100 to 150 km away as well fishers from closer villages. In particular, fishers move frequently between the mainland and the island. This is the case, for example, of fishers from Olumbi who fish in Vamizi Island, or fishers from Quissanga fishing in Quirimba Island. These movements often are associated with spring tides or tend to be more intense in particular months. Tanzanian fishers operate in comparatively smaller numbers and come from Mtwara district (adjacent to the border) as well as from areas further away such as Zanzibar and Dar es Salaam. We asked local fishers who else fished at their fishing grounds in an attempt to identify the origin of outside fishers visiting each site. Table 4.7 lists the origin of these fishers.

Table 4.7. Origin of outside fishers fishing at the four field sites

	<b>Pangane</b>	<b>Quirimba</b>	<b>Mocimboa</b>	<b>Vamizi</b>
From within Cabo Delgado Province	Palma Mecufi Pemba Mucojo Mocimboa Ibo Quissanga Quirimba	Changa Pemba Quissanga Mecufi Mucojo Quirambo Mfuvo Namavi	Pemba	Mocimboa Olumbi Palma Quionga Mecula Namandingo Macomia
From outside Cabo Delgado Province	Nacala Mecula Serissa Nagurue	Nacala	Nacala Ilha de Moçambique Memba Angoche	Nacala Memba Baixo Pinda
From abroad	Tanzania	Tanzania	Tanzania	Tanzania

Fishers cited a number of other migration destinations, which are listed in 4.8. Mozambican migrant fishers migrated exclusively internally within Mozambique, whereas Tanzanian fishers had also migrated to other sites within Tanzania such as Kilwa and Mafia as well as to Kenya (Shimoni-Vanga). Most of the Mozambican migrants interviewed come from Nampula Province. At the study sites, these fishers are often referred to as coming from Nacala, a city in Nampula Province, but their actual origin is much more diverse and includes a number of other locations in Nampula Province. The large majority of destinations mentioned are located in Cabo Delgado Province and include several islands of the Quirimbas Archipelago as well as sites on the mainland. Nampula fishers also mentioned sites such as Angoche, which are located south of their areas of origin, which means that they migrate both northwards and southwards.

Table 4.9 presents a list of the most important migrant fisher destinations in northern Mozambique derived from key informant interviews. The areas marked with an asterisk are the most important in terms of numbers. The importance of these as migrant destinations is likely to change as tourism facilities in some of the islands become operational and limitations or bans on fishing camps and fishing activities are imposed.

Table 4.8. Migration destinations cited by migrants in Mozambique

Interview Site	Destination	MZ citizen	TZ citizen
Mocimboa	MZ-Angoche	1	
	MZ-Ibo		
	MZ-Macomia	3	
	MZ-Mecula	1	
	MZ-Mnemba	1	
	MZ-Mocimboa	6	
	MZ-Nacala	2	
	MZ-Palma	1	
	MZ-Unknown		1
	MZ-Vamizi	4	
	TZ-Kilwa		1
	TZ-Mafia		1
	TZ-Pemba	3	
Pangane	KE-Shimoni-Vang		1
	MZ-Ibo	6	
	MZ-Macomia	1	
	MZ-Mecufi	1	
	MZ-Mocimboa	1	
	MZ-Nacala	1	
	MZ-Palma	1	
	MZ-Unknown	1	
	MZ-Vamizi	1	
TZ-Tanzania	1		
Quirimba	MZ-Angoche	1	
	MZ-Ibo	3	
	MZ-Macomia	5	
	MZ-Palma	4	
	MZ-Vamizi	2	
Vamizi	MZ-Ibo	4	
	MZ-Macomia	3	
	MZ-Mecufi	1	
	MZ-Mocimboa	8	
	MZ-Palma	2	
	MZ-Vamizi	3	
	TZ-Pemba	3	

Table 4.9. Migration destinations in Cabo Delgado Province derived from interviews with key informants

Migrant destinations	
Islands	Quirimba (situated in the QNP)*; Vamizi (locally known as Muamisi, south of Olumbe) *; Tambuzi (situated off Mocimboa da Praia) *; Mechanga (situated off Mocimboa da Praia) *; Matemo (situated in the Quirimbas National Park - QNP) *; Quifuque *; Nonghe (also known as Mionge, situated off Mocimboa da Praia); Rongue (situated off Palma) *; Queramimbi; (situated south of Palma) *; Tecomagi (situated off Palma); Fion (situated in the QNP); Mefunvo (situated in the QNP); Quisiva (situated in the QNP)
Mainland	Mocimboa da Praia *; Palma *; Pangane *; Nsemo (village south of Palma) *; Quissanga *; Arimba (in Quissanga District)*; Quiwia (Palma District) *; Ulo (village near Mocimboa) *; Olumbi (Palma District) *; Quirinde (village north of Palma) *; Messano (near Mucojo); Quiterajo Sede; Pequeue (Quiterajo); Olumbua (Macomia / Mucojo); Darumba; Luchete (Mocimboa) Nsange

Most migrants arrive at destination with others, mainly relatives, crew members and friends. Our survey indicates that migrants arrive in groups of between 2 and 60 people, with an average of 10.6 and a mode of 4 others. The large majority (78%) travelled to their present destination by boat. Some fishers also travelled by public transport (either bus or truck, 9%) and others used a combination of public transport and boat (11%). Many of those who said they travelled by boat were referring to large passenger sail boats that travel regularly from Nacala, making several stopovers on the way. These trips can last several days depending on weather. Migrants fishing with dugout canoes often bring the canoes on the deck of these larger sail boats.



Fishers decide where to migrate based on a number of factors, most often related to perceived fishing opportunities at destination and, linked to this, opportunities to earn good income, and established contacts that facilitate the migration process in various, including providing information about good fishing opportunities, helping finding housing and introducing newly arrived fishers to local authorities (Figure 4.7). Other factors that fishers mentioned as influencing their choice of destination include knowledge of the chosen location gained on a previous migration trip or on trips for other purposes such as trading (Self), and perceived easiness to find housing, freshwater, food and wood for cooking. Some fishers also said that the decision of where to go was made by a family member or patron (Family); other that they chose locations where they had information that it is possible to live and fish without being harassed by local communities (Social), and where there was a good market for fish (Market). Some also chose locations based on distance, usually places that were not too far from their places of origin.

Many fishers appear to choose the islands because of the abundance of fishing resources and their relative isolation, which enables them to fish with relatively little interference from government authorities. However, most of the islands lack freshwater for drinking, cooking and bathing as well as firewood, materials to build shelters, and land for farming. Fishers have to buy all of the above, including most food. Catches are potentially higher in the islands, but living costs can also be high and living conditions arduous. Living conditions on the mainland are generally better. Fishers tend to stay in rented houses. However, living at some mainland sites can also be expensive because of rental costs, whereas in the islands the fishers simply build their own shelters and live rent-free. Amenities such as a disco, film screenings and tea houses in the mainland villages also attract some migrants, particularly the younger ones.

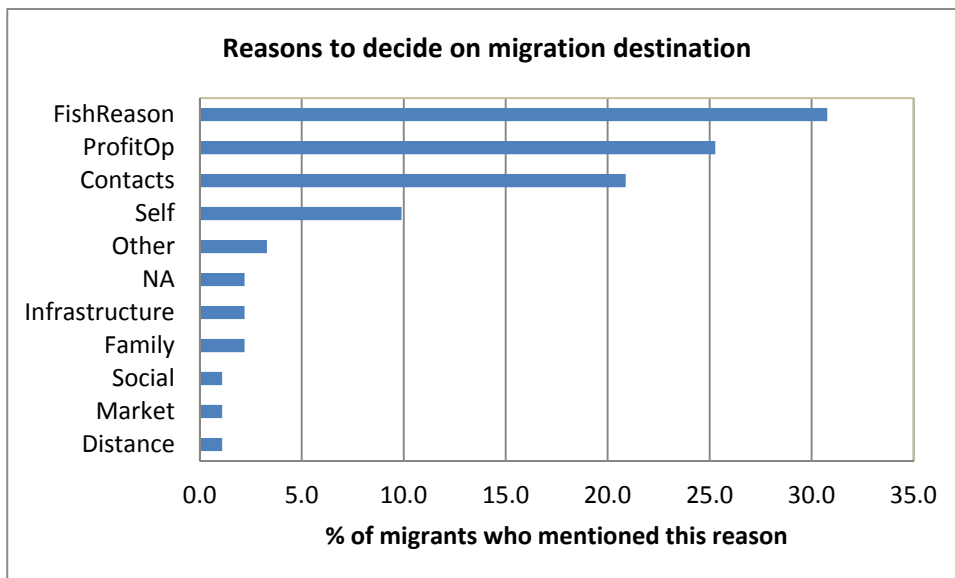


Figure 4.7. Reasons to decide on migration destination (Mozambique).

### *Migration timings, routes and patterns*

For migrant fishers coming from Nampula province there is a distinctive migration season. These fishers migrate with the southern monsoon (Kusi) from about March to November. They return home with the northern monsoon (kaskazi), around November time. With regards to duration of stay, many fishers say that this varies. Essentially, once fishers are satisfied with how the money they have earned, they return home. However, the norm appears to be for fishers to stay for periods of up to 4 months.

However, here are increasing numbers of migrant fishers from Nampula Province who have gradually shifted from seasonal migration to longer-term and even permanent migration. With each migratory trip, these fishers stay longer and some decided to settle more or less permanently, often marrying local women and building more permanent houses. This is an important feature of migration in northern Mozambique, and one which has important implications for integration with local communities and efforts to manage fishing resources. Migrant fishers who marry into the community present challenges for local co-management groups trying to control the entry and permanence of migrants through a system of fees and permits. Marriage strengthens the claims of migrants to fishing resources making time limits or exclusion controversial.

The migration patterns of Tanzanian fishers appear to follow a less distinct pattern. Interviews conducted by Rosendo et al. (2008) with fishers in Mtwara, one of the areas of origin of Tanzanian fishers, revealed that fishing in Mozambique is practiced all year round with a peak between May and August. The proximity of fishing grounds across the border in Mozambique and the easiness of border sea crossings makes short fishing trips of a few days possible. This is the case for lobster and octopus fishing, which are transported live and fresh respectively back to Tanzania. The Tanzanians we found in Mocimboa fishing with light assisted purse seine have settled more or less permanently and return home frequently for short visits.

Our survey data indicates that a large proportion of migrants (58%) are not new to their areas of destination (i.e. it was not the first time they had come to that particular location). Returning to the same areas repeatedly may enable migrants to accumulate ecological knowledge about these areas and develop social networks, both of which can significantly reduce the risks and uncertainties of migration. 43% of the migrants surveyed said that they had migrated to at least one other place in the last 5 years. On average, these fishers had been to 2.4 other areas during the last 5 years. Semi-structured interviews revealed that some fishers go to several areas in the same migration trip, while others, particularly those who have settled semi-permanently at destination will also move locally to other areas and back, combining the benefits of exploiting new fishing grounds with the advantages of returning to a familiar base.

### *Changes in migration patterns*

The flow of migrant fishers into Cabo Delgado appears to have started in the 1980s and intensified in the 1990s. Surveys conducted by Whittington et al. (1997) Stanwell-Smith et al. (1998) and Heasman et al. (1998) in the mid-1990s show that migrant fishers from Nampula Province and Tanzania were already common in the Quirimbas at the time. On those surveys, Mozambican fishers from Nacala (in Nampula) said they had been coming to the islands since 1988. We asked fishers in our surveys when was the first time they had come to that particular destination. The earliest was 1988 but with only one mention, while many more said they had first come in 1993 and 1994, which largely supports the information from earlier surveys mentioned above.

The 1990s surveys also showed that migrants were first attracted to islands with small numbers of resident fishers, where it was easy to set camp and fish relatively free from interference from authorities (Gell 1997). The largest islands with well-established local populations such as Ibo and Quirimba had comparatively smaller ratios of migrant compared to resident fishers. According to Whittington et al. (1997), there were few migrant fishers in Ibo Island, and in Quirimba there were only 20, which included fishers from Nampula and Tanzania (compared to a population of 400 local fishers). This contrasts with the smaller islands, including Quilalea, which had 16 resident fishers and 40 migrants, Macaloe with 2 resident fishers and 80 migrants, Quisiva with 18 resident and 70 migrants fishers, and Rolas where there were only migrant fishers (30).

There have also been important changes in the main species targeted by fishers. In the 1990s, large groups of Nampula migrants came especially to collect shells for the marine curio trade and were employed by companies (Heasman et al. 1998). Tanzanian fishers came specifically to collect sea cucumber and used SCUBA equipment (Whittington et al. 1997). Both these resources eventually declined and their commercial exploitation became unprofitable. They continue to be collected but opportunistically during gleaning and spear fishing activities. It is likely that the curio and sea cucumber trade introduced fishers to the region. With the decline of these resources, these fishers shifted to other species, in turn attracting more migrants. Currently, Mozambican migrants from Nampula target mainly finfish, which is dried and finds its way to markets in urban and inland rural areas in the province and beyond.

Tanzanian fishers appear to have shifted from sea cucumber to octopus and lobster. Malleret (2004) reports that, in 2003, there were 20 boats based in Mtwara town fishing for octopus in Mozambique. These boats undertook fishing campaigns lasting 8-10 days during spring tides, coming back with 350 to 2500 Kg of octopus. The octopus fishing was organized through exporters who provided boats, engines and iceboxes to agents who in turn hired fishers. Octopus and lobster fishing by Tanzanian fishers in Mozambique is limited to areas closer to the border because of the need to transport catches back to Tanzanian fresh. Malleret (2004) shows that fishing grounds in Suavo Island located across the border in Mozambique are some of the most important for Tanzanian fishers in Mtwara. Interviews conducted as part of this study with local

authorities and fishers suggest that the arrival of an increasing number of Mozambican migrants from Nampula has gradually pushed out Tanzanian fishers to areas closer to the border. Mozambican migrants generally dislike the presence of Tanzanian fishers, accusing them of having no right to fish in Mozambique. However, we also found a new type of Tanzanian migrant fisher, namely individuals who have built and registered boats in Mozambique and specialize in light-assisted purse seine fishing.

### *Age, ethnicity and marital status*

The average age of migrant fishers surveyed in Mozambique was 39.3 years, with a median of 39 years. The oldest migrant fisher was 68 years old and the youngest 19 years. The vast majority are married (92.6%) and have on average 4.4 children. Approximately half of the migrants (52.9%) have married a local woman. Marrying locally, therefore, appears to be common and this may facilitate the integration of migrants into local communities. Comparatively few migrants (about 10%) had wives both at origin and destination. This contrasts with the situation in Kenya, where most migrants are polygamous and have wives both at home and in their host communities.

Most migrants are Macua, which is the predominant ethnic group in northern Mozambique, except for the coastal areas extending from north of Pemba city to just south of the border with Tanzania where the main ethnic group are the Muani. Migrants and locals also speak different languages, respectively Emakhuwa and Kinwani. These two languages are not sufficiently close to be mutually understandable, but almost 60% of the migrants interviewed said that they spoke the local language, which probably reflects the fact that many are returning migrants or have more or less permanently settled in their areas of destination. Table 4.10 below presents a summary of the demographics of the Mozambique sample of migrant fishers surveyed.

Table 4.10. Demographics of the Mozambique migrant sample

Total sample size:	82	
Average age:	39.3	
Minimum age:	19	
Maximum age:	68	
Marital status:	Married	92.6%
	Single	6.2%
	Divorced/Separated	1.2%
Average n. of children:	All	4.4
	<=18	3.1
	>19	1.4
Education:	Never gone to school	24.7
	Primary	65.4
	Secondary	3.7
	Other (Madrasa)	2.5
	Not answered / no data	3.7
Ethnicity:	Macua	90.1

	Muani	6.2
	Other	3.7

### *Vessels, crew size and gears used*

Three main types of vessels were found at the study site, namely two distinct kinds of canoes known locally as *mtumbwe* and *cangaia* powered by paddle or sail, and *lanchas* (also known as Ngalawa) which are larger boats powered by sail or motor. *Cangaias* (plural) are typically used by migrants from Nampula Province. Compared to the *mtumbwe*, the *cangaia* is a more agile vessel but it also requires more skill to operate.

There are some differences in the types of vessels used by migrants and locals. Most migrant fishers fish with the *cangaia* (49% of all vessels cited), followed by *lanchas* (27%) and *mtumbwe* (23%). In contrast, most locals fish with *mtumbwe* (64%) followed by *lancha* (36%). None of the local fishers surveyed used the *cangaia*. The survey indicated only slight differences between the length of boats used by migrants and locals. The vessels of migrants are on average 4.59m long compared to 4.23m of locals. However, the difference is more significant when looking at the maximum vessel length reported, which was 12m for locals and 17m for migrants.

The use of motorised boats in northern Mozambique is still relatively rare. In our sample of migrant and local fishers only 11 vessels with motor were reported. Of these, 9 belonged to migrants. Key informant interviews suggest that motorised boats are used mainly by Tanzanian migrants. It is rare for Mozambican migrants to use motorised boats. The use of more agile and larger vessels, some fitted with a motor is likely to result in higher catches for migrants compared to locals. Average crew size varied little between migrants and locals, 5.9 and 5.5 fishers respectively.

### *Fishing effort, catches and target species*

Generally, and without relating the analysis to gear type, local and migrant fishers spend approximately the same amount of time at sea when going out fishing, on average 7.0 and 7.4 hours respectively. With regards to days off fishing, locals appear to fish one less day per month than migrants, on average 4.6 and 5.6 days respectively. Given this, locals fish 170.8 hrs/month while migrants fish slightly longer, 187.8 hrs/month. The fact that migrants on average rest less than locals may explain why locals accuse migrants of fishing very intensively, as they say 'without resting'. Reported catches on a good, poor and average day are also substantially higher for migrants compared to locals. On a good day locals caught an average of 104.2 kg and migrants 236.5 kg; on a bad day, catches were 17.1 kg and 44.6 kg respectively; and on an average day 38.9 kg and 66 kg.

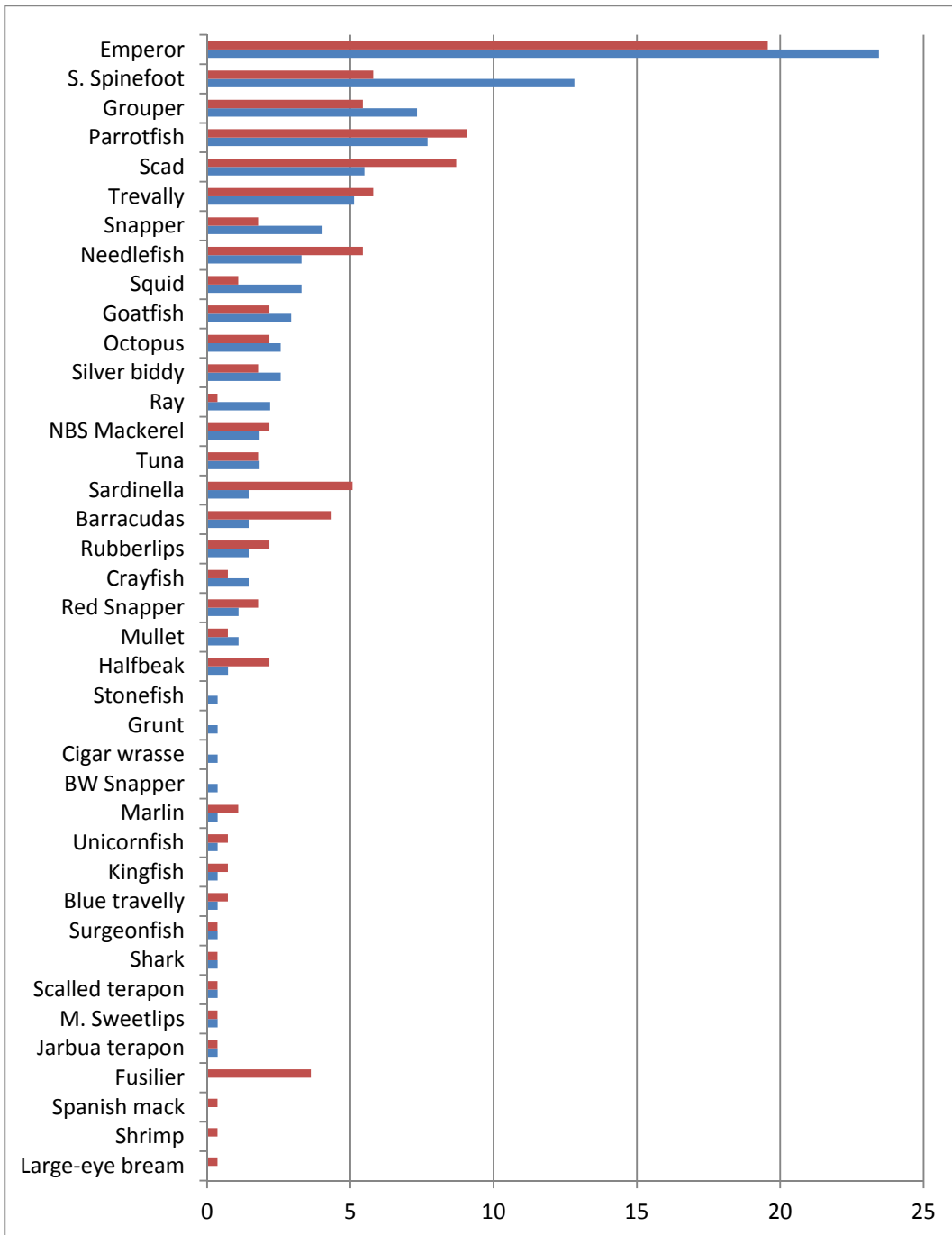


Figure 4.8. Fish species caught by local (blue bars) and migrant (red bars) fishers surveyed in Mozambique (across all sites). Frequency of mention is given in % of total species identified by local and migrant fishers respectively.

In terms of the species caught, there are a few differences between locals and migrants worth noting (Figure 4.8). Catches of some mainly small pelagic species such as sardinellas, scad, needlefish barracudas and half beak are more frequently mentioned by migrants. The analysis was not undertaken considering gears used, but it may be that migrants target small pelagic species because they are easier to process and sell. Migrants and

locals appear to target essentially the same habitats with no significant differences found (Figure 4.9).

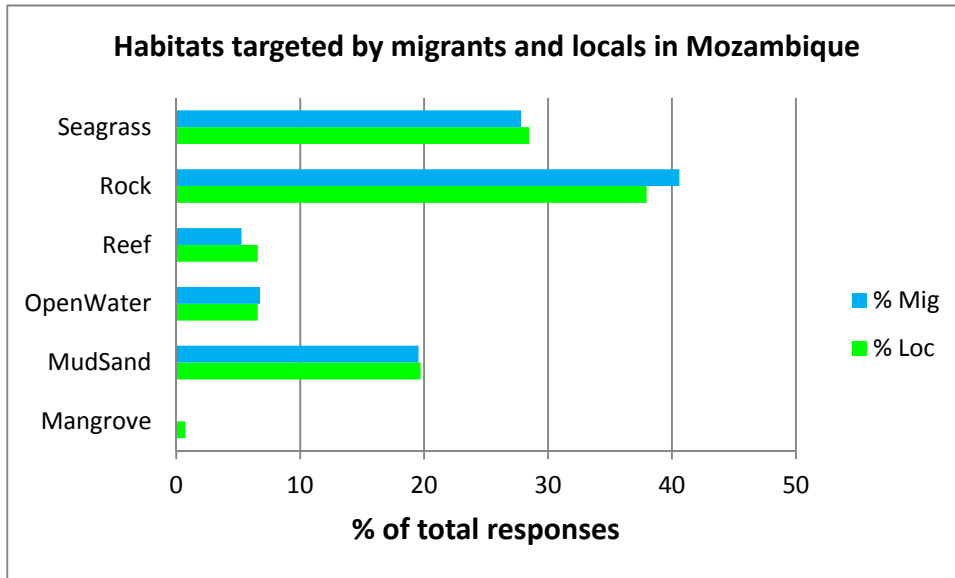


Figure 4.9. Habitat targeted by migrant and local fishers in Mozambique.

## COMOROS

### *Destinations and origins of migrant fishers in Tanzania*

Empirical work in the Comoros found both local migrants as well as migrants arriving to the Comoros from other countries (Table 4.11). In Comoros, migrant fishers were defined as fishers who migrate between the Comorian islands. Within island migration was judged to be too small-scale to qualify as migration. Furthermore, the islands are so small that most fishers would fish sites all around the island and stay with relatives for a night or two, thus making it very difficult to decide if an individual was really a migrant.

Key informant interviews indicate that most of the fishers operating on Moheli tend to originate from Anjouan. The fishermen from Anjouan are reputed to fish regularly at Moheli and Mayotte while those from Grande Comore also operate at Moheli. It is likely that the fishing grounds off Moheli are more heavily fished by fishermen from the other islands than by the local fishermen (James 1998). Our findings indicate a fair amount of migration between islands within the Comoros but the exact extent and duration of these movements could not be established in this study. It should also be noted that Mohelian fishers sometimes also go to Anjouan to sell their catch. The most likely reason is that the market there is better because of lower catch per capita for Anjouanais.

Table 4.11. List of source (origin) and destination sites by respondents at each of the islands of the Comoros.

Island	Place/Site	
	Origin	Destination
Anjouan	<p><i>All round the island but more sites on the west coast</i></p> <p>Abomou Bambao Mtsanga Bandani Bimbini Chaouéni Dar es Salaam Domoni Dourani Hasinpaho Makélé Manue Maraharé Mironsti Miroungani Mouamoua Moya Mpagé Mutsamudu Bandani Nioumakele Ongwoni Ouani Sima Sima Siroupare Vouani Zindri</p>	None identified
Grande Comore	<p><i>Southern and western coast primarily</i></p> <p>Bangwa-Hambou Chindini Foumbouni Malé Ourouveni</p>	<p><i>Western coast, primarily fishing villages</i></p> <p>Bangwa-Hambou Bangwa-kouni Bouni Chindini Foumbouni Hahaya Hantsindzi Iconi Malé</p>



		Mitsamiouli Moroni Mouandzaza-Mboini Ntangadjou- dimani Ourouveni
Moheli	<i>All round the island</i>  Bandar-es-Salam Djoezi Domoni Fomboni Foumbouni Miremani Nioumachoua Ouallah	<i>All round the island</i>  Alamani Bandar-es-Salam between Domoni and Magnouni and to Djoezi Fomboni Gomanwezi Hamavouna Hagnamada Hoani Houchako Itsamia Itsamia Magnouni Mbaheni Mbatse Mchakogou Miremani Miringoni to Nioumachoua Ndrondoni Nioumachoua Ouallah

Table 4.11 lists the various sites on the three islands from which migrants originate. It shows that for Anjouan somewhat more migration occurs from sites on the west coast, while on Grande Comore more migrants migrate from the southern and western coast. In terms of destinations, no sites on Anjouan were identified as sites actively sought by migrants. This is interesting and most likely reflects the lower quality (area and yield) of Anjouanais fishing grounds (see Table 3.6).

On Grande Comore fishing villages on the western coast appeared to be drawing the majority of migrants. This coast has a better developed infrastructure than the east coast and includes the capital, Moroni. On Moheli both sites of origin and destination appear to be spread out across the entire island. Although migrants come from each island and travel to both the other islands the most significant net migration is from Anjouan. This can be seen by looking at the number of times each route of migration was reported by key informants (Table 4.12). Note that the total may add up to more

than the number of migrants interviewed as some informants were involved in multiple routes.

Table 4.12. Number of times each route of migration was reported by key informants.

Route	Number of citations
Anjouan to Grande Comore	19
Anjouan to Moheli	15
Grande Comore to Moheli	4
Moheli to Grande Comore	2

Of the foreign migration destinations identified by fishers in Comoros, Mayotte is by far the most cited. Both the north and the west coast of Mayotte are targeted by migrants from Comoros. However, this migration is illegal as Mayotte is a French overseas department. Mozambique and the Banc du Castor in Madagascar were also mentioned as foreign migration destinations.

The peak productivity, in terms of fishing yields, in both Grande Comore and Moheli is between November and March, during the monsoon season referred to as Kashkazi. In Anjouan the seasonal fisheries production pattern is somewhat more complex due to the shape of the island. During Kusi (May to August), production peaks on the north-west coast but is poor on the east coast. During Kashkazi the situation is reversed. Although this seasonality exists our data does not allow us to determine any definite seasonal patterns in terms of fishers' migration. Nonetheless, Table 4.13 shows preliminary indications of seasonal migration patterns between specific sites and destinations. Interviews show that migrant stays vary, from 1 or 2 days up to several months. Some migrants also stay indefinitely in their sites of destination. The dynamics of migration appear to be largely dependent on each individual's circumstances and reasons for migration.

Table 4.13. General seasonal migration patterns between islands within the Comoros.

Grande Comore>Moheli	Mbeni, less during kashkazi
Moheli>Grande Comore	Arrive during Kusi and leave during Kashkazi, June-December, Mbeni
Anjouan>Moheli	Mbeni, early kashkazi, Kusi
Anjouan>Grande Comore	Arrive during Kusi and leave during Kashkazi, June-December, Mbeni February-September, Kashkazi

### *Age, ethnicity and marital status*

The age of migrants interviewed in Comoros ranged between 16 and 48, and the average age was 32.6 (+/- 2.2 SE) years. Of a total of 28 migrants interviewed across Grande Comore and Moheli, 78% were from Anjouan, 14% from Grande Comore and 7% from Moheli.

### *Vessels, crew size and gears used*

Motorized fibreglass boats, known as *vedettes*, are the most common type of fishing vessels encountered among migrant fishers in our study. These operations generally targeted pelagic fish, such as skipjack and yellowfin tuna, using lines. Some migrants on Moheli also target reef fish (mainly groupers and snappers) opportunistically because these species can fetch a high price. Fish in Comoros are generally sold where they are caught because of poor refrigeration facilities, but a migrant could potentially take his final day's catch back to his island of origin for sale. Field observations suggest that reef fish are more highly valued because they are more difficult to come across, particularly on Grande Comore, where the shelf is very narrow and most fishing is for pelagic species.

Interviews reveal that crews are relatively small, generally consisting of two persons. This is largely due to the small size of many boats. However, on Grande Comore teams were found to be larger, on average and the boats are also larger. Fishing off Grande Comore is conducted further offshore so these boats require a bigger crew – especially for trips into the Mozambique Channel. Migrants reported that they sometimes travel as a bigger group (up to 14 people) and take turns to fish. Crews are reportedly often mixed, so that migrants and locals fish together on the same vessel.

Although this study did not collect comprehensive data on gear types and fishing operations, previous data from the Comoros shows that the predominant gear in use on both Grande Comore and Moheli is lines (97% and 91% respectively), and only a minor portion use gillnets (3% and 4%) (Poonian et al 2008).

### *Fishing effort, catches and target species*

Poonian et al (2008) describe the general fishing patterns across Grande Comore and Moheli. This shows that the majority of fishers on Grande Comore (78%) spend 26-30 days per month fishing. This should be compared to the much lower figure for Moheli, where only 29% of the fishing population spend the same number of days per month fishing. The preferred fishing season on Grande Comore is the so called *Kashkazi*, which is the South East monsoon. On Moheli, the effort is spread out equally between the *Kashkazi* and the *M'beni* season.

### *Summary*

Although the migration patterns and destinations across the four countries presented here are diverse a few commonalities can be discerned. These relate to the categorizations of fishers migrations described in the literature (see section 4.1). First, migrations appear to be divided into those that occur over longer time-scales and where the migrants essentially live permanently (or semi-permanently) in the area of destination. A few of your surveys have shown this and these fishers were included in the study in order to capture this wide range of migratory time scales. However, a larger portion of migrants appear to be conducting different forms circular migration, returning to their home communities, either once a month or every few months. These types of migrations appear to be largely related to the seasonal monsoons which characterize the fishery in most of the WIO region. It is also seemingly related to the type of fishing conducted, i.e. the gear used and the species targeted. Broadly speaking, all the different types of migration patterns outlined by Njock and Westlund (2010) can be seen in our data and in each of the countries studied. To understand the distribution of the different types across all the fishers undertaking migration would require a more systematic data collection over a longer time periods.



Figure 4.10. Fisher in Comoros arriving with catch (Photo: Chris Poonian)



Fish and octopus being dried by migrants at Quirimba (Photo: S Rosendo)

## 5. Drivers of migration

Movement of fishers in the Western Indian Ocean region is not new. Dago fishing, for example, has been a traditional 'lifestyle' for many Tanzanian fishers allowing them to save money by living away from home. These movements are often seasonal and associated with the Northeast monsoon when the seas are calmer and the prevailing winds enable fishers to access more distant and productive fishing grounds. Reasons for migration are diverse. By asking why fishers have migrated as opposed to staying at home, the project shed some light into the diverse reasons for migration.

### *KENYA*

#### *What drives fishers to migrate?*

In Kenya, the possibility of earning more money (mentioned by 51% of respondents), improving one's life (18%), and better market at destination (8%), including more traders and better prices for fish, were some of the economic reasons for migration mentioned by fishers. Thirty seven percent of the migrants interviewed in the surveys said that they migrated to search for better fishing conditions at destination, which is can be seen as being simultaneously an economic and ecological driver of migration.

Migration in Kenya also has underlying social motives. A surprising number of fishers (27%) mentioned search for new experiences as a reason for migrating, particularly travelling and living in a new place, which suggests that migration may be seen as a way to gain life experience and become more knowledgeable and respected by others. Others fishers migrated to join family or friends that were already at destination, which highlights the role that social networks can play in migration (4%). Tradition was also mentioned as a motive for migrating (6%), but appeared to play a much less important role than economic reasons. Escaping economic and ecological hardship at home such as poverty and lack of fish were also mentioned by a small number of fishers (4%). In summary, regardless of origin, the migrant fishers interviewed along the coast of Kenya

appear to be motivated mainly by the desire to improve their livelihoods through better earnings, savings and higher fish catches.

Culture or tradition is often invoked as a reason for migration in fisheries. In the Kenyan survey data we see that 73% of migrants report that their parents were fishers. Of these, 61% also reported that their grandparents fished which indicates that family tradition does appear to play a role in the decision to migrate.

## TANZANIA

### *What drives fishers to migrate?*

In Tanzania, the most commonly cited reason for migrating was the search for more money or better income. This singular reason was cited by 45% of all migrants. More attractive markets in the areas of destination was the second most commonly given reason for migrating (33%), followed by a general desire to improve one's life (30%). The latter of these drivers should be considered in close conjunction with escaping from hardships at home, which was cited by 5%. Although clearly associated with the improvement of life and other economic reason, the search for better fishing grounds was only the 5<sup>th</sup> most cited driver of migration (18%).

In spite of the dominance of economic drivers for migrating there were also purely social reasons for visiting new sites. One of these was described by fishers as experiencing new things and new places, and meeting new people. Twenty percent of respondents felt this was an important reason for migration in associating with fishing. Other driver that can be considered of social nature included family and friends in the area of destination (3%).

Similar to the migrants surveyed in Kenya, a significant portion of migrants in Tanzania also listed culture and tradition as a reason for embarking on fisheries related migration (10%). One way to assess the strength of tradition in terms of fishers' migration is to attempt to assess whether fishing migration is a traditional behaviour within a community. We therefore asked migrant fishers whether their parents and grandparents also undertook fisheries related migrations. Only 43% (17 of 40 fishers) of migrants surveyed in this study said their parents undertook such migrations. Of these fishers, however, 71% also claimed that their grandparents had migrated before them. Of those whose parents did not migrate, only one person said their grandparents migrated. This suggests that there may be two somewhat different types of fishers; those who migrate out of tradition, and those who undertake migrations for other reasons. This would need to be investigated further.

## MOZAMBIQUE

### *What drives fishers to migrate?*

In Mozambique, most fishers said that they migrated because of various kinds of hardships at home (mentioned by 41% of all respondents, shown in Table 5.1). These hardships were mostly related to lack of fish at home and to a lesser extent poverty. Twenty-eight percent of fishers mentioned the search for better fishing conditions as a reason for migrating (28%). This set of reasons included there being more fish at destination and better fishing areas, the latter including more accessible fishing grounds requiring less travel time. Improving one's life was also a motive leading fishers to migrate (given by 23% of respondents), most of which referred to looking for livelihood opportunities where these were available. Possibilities to earn more money, save and make business were also cited as migration reasons (cited by 15% of respondents). Fishers also said that they migrated to join family and friends that had already migrated (10%), and to look for adventure and new experiences which may have the purpose of gaining independence and respect in their home communities (10%). Better markets at destination were cited by 4% of respondents, and tradition only by 2%.

Lack of fish at home and better fishing grounds at destination coupled with possibilities of earning better incomes and improving one's lives appear to be the main drivers of migration in Mozambique. In this case, we can clearly see a combination of different push and pull factors of a mainly ecological and economic nature at play. On the one hand, lack of fish at home is pushing fishers to migrate, but they are also being pulled to other areas where fishing grounds are more productive, enable better catches and consequently opportunities to earn more income and improve one's life.

Contrary to other countries, namely Kenya where traders play an important role in migration by financing migrant operations and various kinds of agreements for buying fish, few migrants in Mozambique mentioned traders as an important reason for migrating. However, we encountered migrants who had come with *patrões* or patrons who owned a boat and also processed and traded fish. Tradition does not appear to play a significant role as a driving factor for migration in Mozambique. This is also supported by questions in the survey asking migrants if any of their parents or grandparents had ever migrated. In 75.3% of cases, migrants said that their parents had never migrated, while 77.8% said that their grandparents had never migrated. Again, this differs from Kenya and Tanzania where tradition to migrate is more common.

Table 5.1. Reasons for migrating cited by fishers. The totals add to more than 100% since respondents were able to give more than one reason.

Category	%	Sub-category	%
Hardship at home	41	Lack of fish at home	34
		Poverty at origin	7
Better fishing	28	More fish at destination	17

		Search for new grounds	7
		Fishing activities easier	1
		Less competition	1
		More fish at destination	1
Improving one's life	23	Look for livelihood opportunities	21
		Ability to farm at destination	1
		Improving life	1
Earning more money	15	More income	7
		Trading	4
		Ability to save money	4
Joining family / friends	10	Reuniting with family	7
		Following friends	2
Gain new experiences	10	Improving fishing experience	6
		Travel	2
		Destination is nice	1
Marked conditions	4	Migration motivated byTajiri	2
		Migration motivated by fish markets	1
Tradition or habit	2	Habit	2
Other	1	Other	1

The semi-structured interviews largely corroborated the findings of the survey, but provided more detail about the motives for migration. Low catches at home, too many fishers and not enough fish were some of the most common motives cited. Other motives mentioned by fishers had an underlying economic reason and included poverty and unemployment at home, the possibility of earning and saving money, the aspiration to improve one's life, and better markets and prices for fish at destination.

In Mozambique, ecological motives related to lack of fish at home (acting as a push factor) and better fishing opportunities at destination (acting as a pull factor), appear to play an important role in decisions to migrate. In interviews, some fishers said that at home they did not catch enough fish even to eat, while at their migration destination catches allowed them not only to meet their basic needs in terms of food, but also buy non-essential items such as new clothes or save to buy a motorbike. The ecological characteristics of the destination can also contribute to the decision to migrate. Fishers said that they migrated attracted by good fishing conditions at destination, not only in terms of more abundant resources but also closer fishing grounds requiring less travelling time and effort. Cultural factors can also be important. A migrant fisher at Mecufi, for example, said that fishers from Nacala are adventurous by nature, that they like to travel and will look for livelihood opportunities where these exist.



## COMOROS

### *What drives fishers to migrate?*

Key informant interviews with migrant fisher in Comoros tended to identify ‘push’ factors that had led them to leave their homes, whereas key informant interviews with local fishers generally pointed out factors that attracted migrants to fish in their waters. Clearly a mix of the both pull and push factors are at play in explaining migration patterns around the Comoros.

Fishers’ migration was often motivated by a lack of money or employment. A lack of freezers (electricity and equipment) and other preservation techniques in Comoros make it difficult to transport fish between islands and imported tinned fish are often eaten when catches are low or weather is bad. The variation in fish landings across islands, depending on seasons and weather, thus results in price differences of fish between islands which in turn attract migrant fishers in search of better market opportunities.

Migrant fishers also mentioned the importance of fishing as a pull to destination sites. Our data does not allow for a comprehensive account of the differences in fisheries landings across sites and islands but figures from 1995 (Abdouhalik 1998) (Table 5.2) are indicative and show a clear differentiation between the three islands.

Table 5.2. Annual catches from Comoros (Abdouhalik 1998)

Island	Kg/fisher	Kg/capita (across the island)
Anjouan	1655	21
Grande Comore	1835	35
Moheli	949	43

Migrants often follow fish stocks. Migrants to Moheli mentioned that Moheli Marine Park provided an opportunity to catch bigger fish. They also noted that Mohelian fishers were kind and accommodating. Local fishers in Moheli noted that migrants came because there was less competition (fewer fishers) on Moheli. Catch was also mentioned – in terms of better fishing grounds, more fish, as well as bigger fish and calmer seas.

Local fishers on Grande Comore stated that migrants came to the island in order to improve their quality of life and access to income through a larger market for fish and associated higher prices. Locals also noted that migrants could learn new fishing skills and could catch more fish because gillnetting is still permitted at some locations on Grande Comore, while it is banned within Moheli Marine Park and around certain villages throughout the country by local fishing syndicates.

Social reasons for migration were also mentioned. Migrants to both Grande Comore and Moheli often migrated because of a lack of employment or income at their home village.

Other migrants had been ostracized from their home village because they behaved badly or 'did not fit in'.

Table 5.3 summarizes the overarching trends of what drives fishers to migrate in the different countries. The categories differ somewhat from the data reported in the individual country sections as the data in Table 5.3 have been collated into categories.

Table 5.3. Drivers of migration. Summary table for Kenya, Tanzania and Mozambique. Percentages refer to percentage of migrant sample population in respective country.

Reason for migrating	Kenya %	Tanzania %	Mozambique %
Better fishing	37	18	27
Family or friends	4	3	10
Hardship at home	4	5	37
To improve life	18	30	23
Institutions	3	3	
Market	8	33	4
To earn more money	51	45	13
To get a new experience	1	3	
Tradition or habit	27	20	10
Other	6		1



## 6. Mechanisms facilitating or hindering migration

### *KENYA*

When asked how they had found out about opportunities at their present location, just over half (57.1%) of respondents said it was from contacts. These contacts included friends, relatives, other fishers and boat captains. A significant proportion (20.8%) mentioned fish traders or dealers as their source of information about fishing opportunities in that particular place. There were also fishers (13%) who found out about fishing opportunities by themselves, in exploratory fishing trips and on trips for purposes other than fishing, such as trading.

Most of the fishers surveyed said they knew someone at their present location prior to coming there for the first time (71.8%). Just under half of the contacts mentioned (42.9%) were friends, 19.6% were dealers and another 19.6% were relatives, including members of their immediate and extended family. The rest of the contacts cited were various other acquaintances (8.9%), crew members (5.4%) boat captains (1.8%) and patrons (1.8%). Of those migrant fishers who knew someone before arriving, the large majority (82.1%) said that one or more of these contacts assisted them to migrate. The most frequently mentioned type of assistance was help with housing, food and water when migrants first arrived (accounting for 29.5% of all individual forms of assistance mentioned by respondents). This was closely followed by financial help (23%), which included money for paying for passport fees, to leave with family at home, to pay for travel and subsistence expenses. Other kinds of assistance mentioned included providing various types of information about the place and the location of fishing grounds (14.8%); introducing the migrant to local authorities including BMUs (6.6%); help with fishing inputs, including boat, fuel and fishing licenses (6.6%); providing a job as crew on a boat (4.9%). This shows that contacts at destination play an important role in facilitating migration through the provision of various kinds of assistance. These networks of contacts and assistance help to reduce the risks of migration.

When asked if they had come alone or with others to their present destination, the majority of respondents said that they had come with others (78.9%). Migrant fishers who came with others arrived in groups of on average of 3.5 other people. They arrived in minimum numbers of one other and maximum of 8 others, with a mode of 5. When asked who were the people they arrived with, 30.1% of the accompanying person or people mentioned were friends, 25.3% immediate family, 20.5% fellow fishers, including crew members, 15.7% members of their extended family, and 6% boat captains.

## *TANZANIA*

All surveyed migrants were asked if they knew anyone in the area of destination before they migrated to the site, and which relation they had to this person. This was done to understand to which degree already established social contacts in the areas of destination play a role in facilitating migration to a particular site. Results show that over 90% of migrants surveyed had found out about opportunities to migrate to their current destination as a result of established contacts, including friends, relatives, fellow fishers or captains (Table 6.1). Contrary to Mozambique and Kenya, traders played little role in providing this type of information.

Half of the migrants interviewed in Tanzania said they knew someone in the area of destination before they arrived. Those who knew someone predominantly identified siblings as contacts in the destination communities (40%), followed by friends (20%), other relatives (15%), and captains (10%). The most common way in which these contacts assisted with migration was to assist in bringing the fisher to the new area (i.e. through transport). Accommodation and assistance with food were also cited, along with advice regarding fishing activities.

The majority of migrant fishers interviewed in Tanzania had arrived together with others (95%). The majority of fishers state arriving with 1-5 others. The median value is 3 fishers in a company, although one fisher reported arriving with 46 other, which brings up the average to 6 fishers in an arriving company. Such large companies are likely to be associated with large vessels and purse seines. Most migrants claim to arrive together with fellow fishers, friends or relatives.

Similar to the findings in Kenya, our data suggest that personal connections in the place of destination plays an important role in facilitating migration, either through transport or accommodation and assistance upon arrival. Notable traders do not appear to play as important a role in either providing information about migration opportunities or facilitating migration as in Kenya. The results also show that migrant fishers rarely arrive on their own, but more commonly as part of a fishing unit, which can be made up of a mix of friends/fellow fishers and where many are linked through family ties.

## *MOZAMBIQUE*

We asked fishers in our sample if they knew anyone at destination before arriving, what relation this person was to them, if they helped them to migrate and in what way. Approximately two thirds of migrants said that they knew someone before arriving (64.2%). Most of these contacts prior to arrival were relatives (48.9%) and friends and fellow fishers (42.6%). In 68.1% of cases, the contacts fishers had at destination before arrival helped them to migrate in some way. The kinds of assistance these contacts provided included various types of information (31.3%) such as the existence of fishing opportunities in that particular site, what local rules exist for outsiders to settle and fish there, and the location of fishing grounds; money mainly for travel but also for gear (25%); help with housing (18.8%); with food (6.3%) and transport to destination (6.3%).

We also asked fishers in our sample how they had found out about opportunities at their present location. About 73% of fishers found out about opportunities through a contact, and 18% found these opportunities by themselves, often on exploratory fishing trips stopping at various sites before deciding on a destination or on travels for purposes other than fishing, and 6% specifically from traders. Most of the contacts were other fishers, but relatives and friends were also frequently mentioned.

The majority of the migrant fishers surveyed in Mozambique came with others to their present destination (75.3%). They came in groups of between 2 and 60 people, with an average of 10.6 and a mode of 4 others. When asked who were the people they came with, 36% were friends from the same area, 23.7% were relatives, 20.2% crew members, 2.2% boat captains and 7.9% other relations. Although migrants tend to migrate as part of a crew, all others they came with did not necessarily belong to the same fishing unit. This is because many fishers arrive in large transport sail boats. These boats also transport the fishers' dugout canoes, which has seen in section 4.1 are one of vessel types most utilised by migrants.

In Mozambique, social networks formed by relatives, other fishers, boat captain, patrons, friends and other acquaintances play an important role in facilitating migration. They act as a source of information to prospective migrants, providing them with details on matters such as the existing of fishing opportunities in other areas, arrival procedures including how to get permission to settle in a community and to fish, and the location of fishing grounds. Social networks also facilitate migration through provision of financial support to fund travel costs and fishing gear, and help with housing at destination. Consequently, migrants who have access to these networks of contacts and assistance are better placed to migrate than others who do not.

## COMOROS

Human capital among fishers on Comoros is generally quite low. In 1984 a fishing school (Japan International Cooperation Agency (JICA) fishing school) was established in Anjouan to train fishers but it is unclear how many fishers this school has actually trained during its existence. Generally Comorian fishers possess little capacity for maintenance of engines or diversity of fishing techniques. Before the JICA project was initiated almost all fishers used paddle or sail powered canoes. Key informants often called for training in new fishing techniques, engine maintenance and preservation techniques.

Some migrants have their own boats but most work for a captain at the destination site. They arrive at their destination as passengers in fishing boats or take the planes or very irregular ferries that travel between the islands.

Fishers often noted that the main requirement to migrate was to have friends or family at the destination site. These familiar contacts would normally provide housing and local contacts. This is similar to other countries investigated, such as Kenya, where social capital, in the form of social ties, plays an important part in facilitating migration.

Some fishers interviewed claimed they migrated because they had friends that migrated, or their family had migrated for several generations. This thus indicates that migration is something that has occurred for generations in Comoros but the extent is difficult to determine.

### *Summary*

Our findings demonstrate the important role that social capital has in facilitating the migration of fishers. Social capital is manifested in information flows and knowledge sharing about fishing opportunities and social support structures to help migrants establish themselves when they first arrive at a new location. Most fishers, across countries, had contacts at a place before going there, and most also received help from these contacts when they first arrived. In Kenya, and to some degree Mozambique, findings also support the data from interviews showing the importance that traders have in facilitating migration both as sources of information as well as provision of assistance to enable fishers to travel and to settle once they arrive. In Kenya, these networks may not only facilitate migration, but also encourage it. Fishers are more likely to decide to migrate if they have some assurances of success.

Table 6.1. Summary of sources of information for migration opportunities among migrants in Kenya, Tanzania and Mozambique. Figures indicate percentage of total migrant sample in each country.

<b>Source of opportunity info</b>	<b>Kenya</b>	<b>Tanzania</b>	<b>Mozambique</b>	<b>Grand Total</b>
Came by own accord	15	10	18	44
Through an established contact	58	90	73	222
Trader	23		6	29
Other	6	5	2	13



Migrant from Nacala using baited traps, in Olumbe (Photo: S Rosendo)

## 7. The role of external factors in facilitating or constraining migration

### *KENYA*

#### *Social and political climate*

This section will include discussion on things such as political climate, post-war; existence of BMUs and other local management institutions; degree of enforcement of regulations (i.e. poor enforcement of emigration laws, licensing), and gaps in legislation.

In general, across all sites, it appears that existing social and cultural links between the migrant fishers and the local recipient communities have promoted good relationships between the migrant fishers and local fishers. One important reason for this appears to be the fact that similarity in cultural practices and religious beliefs. Most fishers along the Swahili coast, migrants and locals alike, are Muslim and share the Swahili culture. The tradition of high mobility among coastal East African fishers also appears to have promoted intermarriages which means that many fishers we interviewed had extended family in both their place of origin and destination. The communities from Zanzibar, Tanga, Pemba and Moa have been particularly closely related to the Kenya coastal communities for years and have intermarried a lot. As a result migrants, whether Tanzanian or Kenyan, are often not discriminated against by the local communities and in several sites (e.g. Shimoni, Takaungu, Ngomeni, and Gazi) local communities reported helping migrant fishers including offering them houses for rent and guiding them to get food, water and fuel. In some communities which receive a significant amount of migrant fishers each year, such as Gazi, migrant fishers often work together with the local fishers, recruiting them as part of the crew, hence creating a strong relationship between the migrants and the local community. In summary, these types of interactions seem to have discouraged conflict and encouraged cooperation among locals and migrant fishers in many of the villagers we surveyed.



Another reason often cited by members of the local community for why it is beneficial to receive migrant fishers is that they increase the amount of fish landed in the village. This benefits locals by increasing amount of fish available to local consumers, it often reduces prices of fish, creates business opportunities for dealers, and provides fish for local eateries. Women dealing in smaller fish (often called 'mama karangas') can also benefit but it appears that type of gear is very important in determining this. For example, gears such as small traps and beach seines, which bring in small fish are useful for the mama karangas but in communities where migrants target larger pelagic, 'Grade A' fish they do not benefit these women.

Clearly, exceptions to the largely positive views which appear to facilitate migration do exist, and recent violence and conflict in fishing communities, such as Watamu (where we were not able to collect data), are testimony to that. Overall, very few of our survey respondents (both local and migrant fishers) reported having been involved in any conflict with migrants or locals respectively. However, when asked if any conflict exists between locals and migrants in the community a somewhat larger proportion of locals agreed conflicts did exist (on average 64% of locals compared with 9% of migrants across sites). In some sites views of existing conflicts were more pronounced (Shimnoni and Kipini) while in others they were less so (Vanga).

As for political constraints to migration, our study documented only one incident in Takaungu, where some migrants from Pemba using ringnets were not allowed not fish for one week because of a written order by the government of Kenya restricting them not to fish. They claimed that this was the second time they had been denied to fish since they came to Kenya in October. During our work in Kenya the project team was in contact with the Kenya Fisheries Department and were informed that the KFD is in the process of overseeing the need for tighter regulation on ringnets, and that temporary bans had been issued to address conflicts over use of this gear type in Takaungu.

### *Local and national institutions: Beach Management Units and gaps in legislation*

Our surveys and key informant interviews in five sites along the Kenyan coast show that in general, Beach Management Units (BMUs) largely support the arrival of migrant fishers. One reason for this is that these fishers pay anchorage fees and other levies, such as taxes of fish landed and sold at the auction. Given the larger catches often associated with migrant operations (see Section 4) migrants can thus contribute substantially to the finances of local BMUs. In some communities, such as Takaungu migrants report having such well working relations with the local BMU that the BMU invited them to the village and provided them with an engine after theirs broke down. This is perhaps not the norm but shows the predominantly harmonic relations between local management bodies and migrating fishers, and the role they can play in facilitating migration in Kenya.

The lack of enforcement of current fishing laws and immigration laws is an issue which likely facilitates migration, or at least allows for many non-Kenyan migrants to fish in Kenyan waters. As stated in a draft of the Kenya Fisheries Policy from 2008 (Section 2.2.3) “it has been difficult to enforce management measures because the fisher communities have been slow in taking up their roles as co-managers of the resources.” According to the Kenya Fisheries Act (Chapter 378, Section 7) no vessel is allowed to fish in Kenyan waters without a valid license, and “any person who uses any vessel for fishing in Kenya fishery waters without a valid certificate of registration for that vessel shall be guilty of an offence”. It also states that “no foreign fishing vessel shall fish, attempt to fish or participate in fishing operations in Kenya fishery waters without a licence issued under section 12” (Chapter 378, Section 11). Furthermore, the Kenyan Immigration Act (Chapter 172, Section 13 f-g) states that any person who is not a citizen of Kenya, and who engages in any employment, occupation, trade, business or profession, without being authorized to do so by an entry permit, is liable to be prosecuted. Employing someone without such a permit is also an offence. The majority of non-Kenyan migrant fishers encountered during our study were not in possession of work permits but had valid passports from their country or origin.

Key informant and focus group interviews revealed that as long they entered with a valid passport, non-Kenyan migrant fishers were granted fishing licenses from local fisheries officials (Vanga). In Ngomeni, the immigration department processed entry documents for the migrant fishers upon arrival. Thereafter the migrant fishers reported to the village elders who then notified the villagers of their presence. In some villages (Gazi) migrants are required to carry letters/permits from the local BMU, and from the fisheries department in their country of origin, which are presented to the recipient village chairman, assistant chief, BMU and fisheries department in the host village. An example is provided by a trader in Shimoni who claimed that the migrants are charged an entry fee of Ksh 300 for every 3 months but this was not confirmed by the Immigration Department. Thereafter, the migrants pay an anchorage fee of ksh.1000 per boat to the BMU. Their host dealer arranges for a fisheries license at a fee of Ksh 2500 per fishing unit. This license lasts for 3 months as well. The BMU in Shimoni also cited the Fisheries Act which requires foreign fishers to pay \$20,000 but this has not been implemented on the small-scale fishers and trawlers arriving in Shimoni. In Mayungu, local fishers said it was mandatory to have a fishing license and that any migrant must pay anchor fees in relation to boat size, BMU membership fee (Ksh 200), fish tax on fish landed, as well as a Ksh 350 per year fee to the BMU. This is interesting as the Kenya National BMU guidelines state that to qualify for BMU membership any person must “comply with the relevant National rules and regulations necessary for one to qualify to work in Kenya”.

The project team requested to interview representatives of the Kenya Ministry of Immigration to clarify what permits fishers crossing the border into Kenya would normally receive, and if these would be sufficient to qualify for legal work according to

Section 13 f-g (as listed above). However, we were not granted much information about this. Hence it remains unclear if the permits most fishers receive do in fact qualify. What is clear, however, is a lack of uniform structure, or enforceable guidelines among government officials and BMUs, in how to deal with non-Kenyan migrants. It appears that this may result in failure to enforce current laws which in part allows transboundary migration to occur.

### *The role of traders and patrons in facilitating migration*

In all of the communities surveyed in Kenya the role of traders in facilitating migration was evident. Crona et al (2010) describe how fish traders often recruit non-Kenyan migrant fishing crews during high fishing seasons. Our key informant data support this and shows that dealers often assist migrating fishers by paying for the passports, entry permits and fuel, and advancing money to the migrant fishers' families in their place of origin. It is not uncommon that dealers considered 'local' in fact originate from outside of Kenya. Several of these non-Kenyan dealers we interviewed admitted to recruiting migrant crews from their home communities to come and fish in Kenya. But local dealers are also commonly cited as recruiting migrant fishers to fish in Kenya.

Crona et al (2010) show that dealers often own the boats and recruit migrant crews to work on them. Interviews conducted here also show this to be the case. One example is a fish trader in Vanga who reported owning one large boat used for ringnetting on which he employs both migrants and locals as crew. These migrants appear to come more as labour, sometimes coming on transport boats and finding employment on ring net boats once they arrive in Vanga. As such they work more as manual labour than independent fishers. The same dealer also manages operations (mainly ringnetting) for other boat and gear owners not directly involved in fish trading. Our survey data show that approximately 20% of interviewed migrants cited their dealer as the person who had assisted them in arriving at their current migration destination.

## **TANZANIA**

### *The role of external factors in facilitating or constraining migration*

Our data from Tanzania is somewhat sparser on these aspects than for Kenya and Mozambique. However, key informant interviews in sites along the northern coastline reveal that in the wake of the Tanga Coastal Zone Conservation and Development Programme (TCZCDP), which provided a lot of support for building collaboration around coastal management, and supporting the collaborative process, the situation appears to have changed. Funds are no longer available to transport participants to the various inter-community meetings and the boat previously provided for monitoring has no fuel. A BMU has been formed in Kigombe, and as a result all fishers, migrants and locals

(including their gear), have to be registered in order to land their fish. Whether this will have any effect of the flow of migrants into the areas is unclear.

Contrary to Kenya, and to some degree Mozambique, patrons or traders appear to play a minor role in facilitating migration in the Tanzanian mainland sites investigated. This is confirmed both by key informant interviews and surveys.

## *MOZAMBIQUE*

### *Social and political climate*

The arrival of migrants may cause conflicts with local communities in situations of resource scarcity, when both locals and migrants compete for diminishing resources. In the case of migrant fishers much of what brought them to these particular sites was the abundance of fishing resources, at least when compared to their home areas. Although many local and migrant fishers alike perceive that catches have declined over the last few years, it does not appear that the decline reported has reached critical levels. Large amounts of fish continue to be landed daily, which can have the effect of masking the extent of any real resource decline and therefore dilute the urgency of restricting access to resources or other management measures. Thus far, in most places migrants are tolerated if not always welcomed. A considerable drop in fish catches may in the future cause local communities to adopt a less laissez faire attitude towards migrants. However, even if this occurs, the social and economic relationships developed between locals and migrants make the task of excluding migrants from resources difficult. Migrants are marrying into local communities and some aspects of their presence are considered beneficial, especially in terms of improving fish supply. The capacity of local fishers to exploit fishing resources is currently limited by technology. At the same time, demand for fish is growing due to an increasing population and migrants are contributing to filling the gap between a limited supply and a growing demand. After overfishing, one of the mostly frequent criticisms made by key informants in relation to migrants is that some do not sell fish to local people. Similarly, the fact that some do sell fish locally is often pointed out as one of their greatest positive contributions.

Social, cultural, ethnic and religious similarities between locals and migrants also appears to contribute to the relatively smooth coexistence between the two groups in a context in which fishing resources are still relatively abundant. Locals and both Tanzanian and Mozambican migrants share the same religion and many social and cultural habits. Languages are also similar, for example Swahili and Mauni are closely related and Macua, the language of the Mozambican migrants coming from Nampula, Province is also widely spoken in Cabo Delgado. In the case of Mozambican migrants who are the majority in the study areas, there is also another factor that appears to play an important role in their local acceptance, albeit sometimes accompanied by misgivings. It is the strong belief amongst locals that, as Mozambican citizens, these

migrant fishers have the right to live anywhere in the country they wish and fish for a living given that the sea belongs to all. Beyond moral sentiments that are most likely associated with historical processes of nation-building, including the fight against colonialism and the search for national unity in the context civil war, these rights are legally supported, namely in the Mozambican constitution that protects the right of citizens to move and settle freely within the country as long as they respect the law. Several key informants also emphasised the respect for local norms , rules, culture and traditions as one of the key conditions for accepting migrants and their disrespect by migrants as one of the actions that most inflames the feelings of local communities.

### *Marine Protected Areas (MPAs), tourism and oil*

Cabo Delgado features prominently in government plans for investment in tourism (MITUR 2004b), which is one of several priority economic sectors to achieve sustainable reductions in poverty through the creation of jobs (GoM 2006). The creation of Marine Protected Areas (MPAs) and other conservation areas in Mozambique is strongly linked with government plans to promote tourism. The creation and management of these and other types of protected areas has been placed under the Ministry of Tourism (MITUR) which reflects their strategic importance for tourism development. The study area in northern Mozambique already has one MPA, the Quirimbas National Park (QNP) created in 2002. There are plans for another MPA, the Rovuma National Reserve (RNR), on the border with Tanzania. These marine conservation initiatives at the national level are linked to wider international plans for large-scale eco-region conservation in the form of transboundary networks of MPAs. WWF (2004) identifies the Mtwara-Quirimbas complex as a key site for a transboundary network, which already features the Mnazi Bay – Rovuma Estuary Marine Park (MBREMP) in Tanzania, situated immediately adjacent to the border with Mozambique and the QNP, which is located further south across the border. The future RNR is planned to mirror MBREMP, thus effectively creating a transboundary network for marine biodiversity conservation, which at the same time is expected to support the growth of tourism across the region. However, these marine conservation plans have important implications for local and migrant fishers alike (Rosendo et al. 2011).

The QNP encompasses a total area of 7,506 km<sup>2</sup>, including 1,522 km<sup>2</sup> of marine habitats and all 11 islands of the southernmost part of the Quirimbas Archipelago (MITUR 2004a). One of the main motives for establishing the QNP was to reverse the increasing degradation of fishing resources. The management plan states explicitly that the local population considers that the main cause for this degradation is due to ‘...excessive fishing pressure caused to a large extent by the exhaustion of fish stocks in the neighbouring areas of Nampula and Tanzania and the resulting and recent influx of migrant fishers to the QNP area’ (MITUR 2004b:5). The QNP explicitly views overfishing as being the result of migrant fishing activities (QNP Management Plan, (MITUR 2004b:11). For Park authorities, local communities have a minimum impact on resources because they fish mainly for their own consumption, selling only the surplus catch. In contrast, migrants fish intensely for the market therefore with greater consequences for

resources. Reflected in the QNP Management Plan is also the general assumption that migrant fishers are generally better equipped than local fishers (better nets and boats), which enables them to catch more fish. It also reports frequent conflicts between local and migrant fishers and claims that local fishers feel 'invaded' and indignant about the fact that outsiders use more sophisticated gear and also more destructive fishing practices.

QNP impacts all fishers because it introduced a zoning system which includes several 'sanctuaries' or areas permanently closed to fishing. These areas have been promoted as a way to conserve biodiversity and to attract tourists as well as a means to improve fish stocks through the so-called 'spill-over' effect of marine reserves. Since these areas exclude all forms of resource use, they impact on all fishers. Even locally, these measures were initially unwelcomed by fishers who see the sanctuaries as benefiting mainly the tourism operators (Johnstone 2004). Key informants mentioned that local fishers have since become more supportive of the Park because fish has started to spill-over from closed areas and catches have increased. An important way in which the Park impacts specifically on migrant fishers is by recognising that "local communities will play an important role in authorizing **migrant fishers** (original emphasis)" and that 'they [local communities] have the right to reject undesirable [migrant] fishers' (MITUR 2004a:66). This passage in the Management Plan goes on to emphasise that the number of migrant fishers should be controlled, and that any limits imposed should be increasingly based on scientific research. The Park is assisting local communities in this respect by promoting the creation and building the capacity of Community Fisheries Councils or CCPs, which are community-level institutions that are part of a broader institutional framework aimed at promoting the co-management of fishing resources (GoM 2003). Beyond the QNP, CCPs are also the main means through which some efforts are being made to control migration, both at destination and origin.

The development of tourism in the study areas, both inside and outside the QNP, is having the effect of displacing fishers from some areas, with migrant fishers worse affected. The type of tourism that the government wishes to promote in the region is low-density developments aimed at the high-end section of the market (MITUR 2004b). The islands of the Quirimbas Archipelago are prime areas for this kind of tourism, which is based on exclusive luxury lodges for a small number of guests enjoying a high level of privacy and service. The Mozambican government has given private investors concessions to develop tourism in a growing number of islands in the Quirimbas, inside and outside the QNP. These concessions are for entire islands or for specific areas within islands. Fishers were banned from establishing their camps in some islands, particularly on those islands which are entirely owned by an investor. In other cases, fishing camps were relocated within the island, to areas outside the tourism concession. It is worth noting again that camping on the islands enables fishers to access productive fishing grounds that would otherwise be difficult or even impossible to get to with the current means that fishers have available, mainly dugout canoes and sail boats.

Recently, the Mozambican government has divided the entire coastline stretching from Nampula Province to the border with Tanzania into concessions for oil and gas exploration, which have been put out for tender and won by different multinational companies. At this stage, companies are prospecting for reserves and assessing their potential, but if viable amounts are found their exploration is set to impose spatial limitations on the fishing activities of local and migrant fishers alike.

As a result of conservation, tourism and potentially oil and gas exploration, fewer areas in the Quirimbas Archipelago are available to migrant fishers. It is unlikely that migrants will stop coming to the region, but where they settle and fish is likely to change as a result. Many are likely to set up camps on the mainland, although this will imply losing access to some of the more distant and productive fishing grounds that will be difficult to sail to. The potential introduction of motor boats may address this problem.

### *Fisheries co-management initiatives (CCPs)*

Key informant interviews suggest that the capacity of government agencies to enforce fishing rules and regulations is weak in most places, which encourages unregulated fishing by migrants and locals alike. Weaknesses in law enforcement are believed to be one of the factors affecting where migrant fishers decide to go. Several key informants said that migrant fishers prefer fishing in the islands and other more isolated sites because these are least regulated. However, this is mainly the view of government authorities and fisheries technicians interviewed at the areas of destination of migrants. Few of the migrants that surveyed explicitly said that this played a role in his decision of migration destination. In 2003, the government enacted fisheries co-management legislation, partly in an attempt to devolve management power to local communities and other stakeholders. At the community level, co-management policy is translated into the creation of Community Fisheries Councils (CCPs), which are responsible for assisting the government to implement existing fisheries regulations with a well-defined geographical area of operation.

CCPs have been entrusted by the government with the task of managing migration both at origin and destination. At origin, fishers are required to obtain a permit from their local CCP to migrate. This is a document authorising the fishing unit (a boat or boats together with accompanying gear) to fish at another location. This permit is supposed to feature the name of the vessel, the name of the owner and the gear used. Key informants also said that the permit also stated a specific validity (for example 2 months) and a specific migration destination. We were not able to obtain a sample of this permit and the various accounts of its nature suggest that there is no single template for it. These permits can also be issued by the Maritime Administration.

At destination, CCPs have been instructed to check that migrants are legal, including being in the possession of fishing and boat licenses and a permit issued by the CCP or Maritime Administration at origin. Some CCPs are also developing rules to limit the stay of migrant fishers, and introducing fees for migrants. In Quirimba Island, the local CCP is

asking 500 MT to each migrant fishing unit and has established a maximum stay of 45 days. Of those 500 MT, half goes to the local community (administered by the religious leader) and another half to the CCP. In Mocimboa da Praia, the CCP has discussed a similar system (50 MT per migrant fisher), but has not yet been able to implement it because of a dispute with district and municipal authorities over the right to collect taxes, which has conventionally been exclusively done by the government.

Specific examples of changes in migration destinations as a result of the introduction of more strict controls over fishing were cited in interviews. The first was the case of Quirimba Island, where the introduction of fees for migrant fishers by the CCP is causing migrant fishers to choose other nearby areas to camp (i.e. Quissanga, Mefunfo, Navinje and Pangane). This way the fishers avoid this charge, while still fishing around Quirimba Island due to its proximity to these alternative destinations. Another example is from Vamizi where the local CCP has created a sanctuary. News got around of prohibitions to fish in Vamizi, and as a result it appears that migrant fishers are heading to other islands such as Quifuqui. It was also reported that fewer migrants are arriving in Ibo Island because of strong control by Park authorities. Park authorities do not prohibit migrant fishers from fishing within the Park, but they must fish legally (be in the possession of gear and boat licence and permit issued by their local CCP at origin).

However, the introduction of stricter controls over fishing does not appear to be dissuading some migrant fishers. Mocimboa da Praia remains one of the largest migrant fishing centres despite efforts by the local CCP, the District Services for Economic Activities and the Maritime Administration to enforce compulsory licensing of fishing activities (gear and boats). According to the Maritime Administration, there is greater compliance with licensing among migrant fishers than among local fishers. This is because migrant fishers are under greater scrutiny from authorities. Given that migrant fishing units are often much more efficient and profitable, paying for licenses may not represent a problem for boat owners or *patrões*. In a strategic place as Mocimboa, which has access to good fishing grounds and a large market for fish, paying for licenses may in fact be much easier and affordable for migrants than locals.

## COMOROS

### *Political climate*

There appears to be no real obstacles to migrant fishers moving between the islands in terms of legislation. All Comorians are free to fish anywhere in the country as long as they follow local regulations. Nonetheless, internal political conflicts do exist and fishers' migration may therefore be affected by political conflicts between the islands. One example is if there is a problem between the Mohelian government and that of the Grande Comorian. Grand Comorian fishers may then be denied access to fish in Moheli.



This is at least a perception among the fishers interviewed in this study. However, no empirical evidence exists to support this claim.

Some migrants are also involved in import/export of coconuts, bananas, etc between the islands. These are products which are very cheap on e.g. Moheli but expensive on Grande Comore. This thus provides a further incentive, in addition to the fishing, for people to migrate between islands and shows that informally the fisheries sector is likely to be highly intertwined with other forms of trading. Interviews revealed that some migrants carry passengers or goods between the islands – this is technically illegal because they do not go through official immigration points of entry; however immigration officials do not have the capacity to enforce this so generally escape unpunished.

### *Local institutions*

Local fishing syndicates exist at all the study sites, however, their efficiency varied widely, with multiple syndicates existing in some villages because of breakaway groups formed as a result of past disagreements. No ownership of fishing grounds was recognized and Comorian fishers were free to fish anywhere they pleased, although local syndicates may establish gear restrictions (e.g. dynamite, gillnets, hurricane lamps, poison, spearguns). Syndicates provide access to gear storage and freezer facilities and will rescue fishers that are lost at sea. Migrants are generally expected to join the local fishing syndicate and pay any required fee or donation (e.g. fuel or a proportion of their catch). Migrants often mentioned that it would be advantageous to have organizations specifically for migrant fishers to support their rights and ensure their safety. Migrants may be reprimanded or asked to leave the village if they break local fishing rules.

### *Summary*

Migration takes place in a social, economic, cultural, political and institutional context which may enable or constrain it. Across the region, there are important linguistic, cultural, ethnic and religious similarities that facilitate the migration process. Economic conditions, namely a growing demand for fish and limited ability of local fishers to meet this demand also creates enabling conditions for migration as local communities are more likely to accept migrant fishers. We found examples of legal and institutional aspects constraining migration. Countries have clear fisheries and immigration laws that condition the entry of foreign migrant fishers. But there are weaknesses in the application of existing laws that facilitate migration. In the case of Kenya, Tanzanian fishers enter the country legally as visitors, but generally are not in the possession of work permits. In Mozambique, it is believed that many Tanzanians cross the border without passports, particularly those fishers coming for short periods of time to fish for octopus and lobster. Other institutional aspects that in some places seem to facilitate migration are BMUs in Kenya, which authorize migrant fishers to fish in exchange for fees and levies. Many CCPs (the Mozambique equivalent of BMUs) are not collecting

fees from migrants, but they are likely to follow the same route as the Kenya BMUs described above due to their need to generate revenue. In Mozambique, where the majority of migrant fishers are nationals, charging migrant fees in addition to the fishing licenses required by law may prove controversial and potential clash with the constitution which protects the freedom of movement and residence of national citizens (Article 55).

The increasing partitioning of seascapes through MPAs and the development of tourism is placing constraints on the movement and activities of migrant fishers. MPAs may also become a driver of further migration. In Tanzania, the establishment of the Mnazi Bay – Rovuma Estuary Marine Park (MBREMP) impacted on local fishing activities, particularly in terms of restricting the use of certain gears. It also includes the establishment of no-take zones, although these are not yet fully implemented and fishers continue to fish in reserve areas. Banning certain types of gears in Tanzania and closing off areas to fishing can have the effect of displacing fishing effort from Tanzania into neighboring Mozambique. Fishing grounds across the border in Mozambique are already important for MBREMP fishers, and it is not difficult to envisage that faced with spatial and gear restrictions, these grounds will become even more important. The presence of Tanzanian fishers across the border in Mozambique has been facilitated by weak law enforcement, particularly because Mozambican authorities lack the means to patrol areas at the sea where Tanzanian fishers operate. Larger motorized boats used by Tanzanian fishers allow them to fish at sea without the need to come to shore and into contact with local communities and authorities.

MPAs, together with tourism, are already having the effect of reducing the areas available for migrant fishers to fish and, also importantly, to set up fishing camps. The development of the islands of the Quirimbas for tourism and the consequent displacement of migrant fishers will cause these fishers to find alternative locations which are now mainly available on the mainland only. An increasing influx of migrants to local communities will undoubtedly put some pressure on these communities in terms of housing, freshwater, building materials and generally their ability to maintain law and order in face of a growing population. It will also increase competition between fishers who will be restricted to fewer fishing areas as well as putting pressure on those areas, potentially leading to localized situations of overfishing. Recent oil and gas exploitation in northern Mozambique may accelerate and accentuate these trends. Experiences from the Philippines show that the exclusion of migrant fishers from MPAs undermined the success of these areas because the migrants did not understand why they had been created nor the rules and regulations that were set in place and therefore did not abide by them (Oglethorpe et al. 2007). In Mozambique, exclusion of migrant fishers is also unlikely to succeed at alleviating pressure on resources.



Figure 7.1. Icebox in Kigombe, owned and provided by external trader. (Photo: B Crona)



Fish for sale at Kigombe, Tanzania (Photo: B Crona)

## 8. Impacts of migration on communities of destination

The perceived effects of migrants on local communities can vary widely depending on who you ask. For example, shop owners may have a largely positive view on migrants because of the additional business they provide. The population in general may also consider migrants to be good because of improved availability of fish and potentially lower prices. However, local fishers may see migrants as being largely detrimental because of increased competition for scarce fishing resources. We explored the effects of migrant fishers on communities of destination mainly from the perspective of local fishers, which arguably is the social group within these communities most likely to have negative views of migrants due to competition over resources. We supplement the analysis with interviews with a wider range of informants. Many respondents believed migrants had both positive and negative impacts on local communities. The various negative and positive effects cited by local fishers were of social, economic institutional and ecological nature. These views and perceptions are explored for each country in the sections below.

### *KENYA*

When asked about the benefits and drawbacks of receiving migrant fishers into their community, local fishers cited a wide range of issues. These are presented in Figures 8.1 and 8.2 and are summarized in under headings addressing social, economic, ecological, and institutional nature of these impacts.

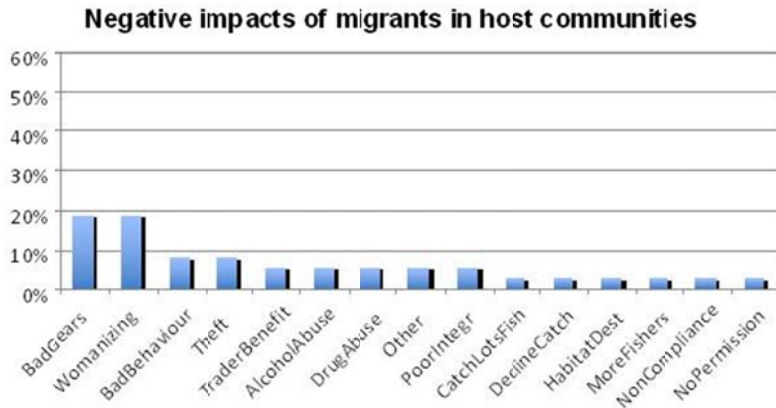


Figure 8.1. Negative impacts of migrants in host communities, as perceived by local fishers.

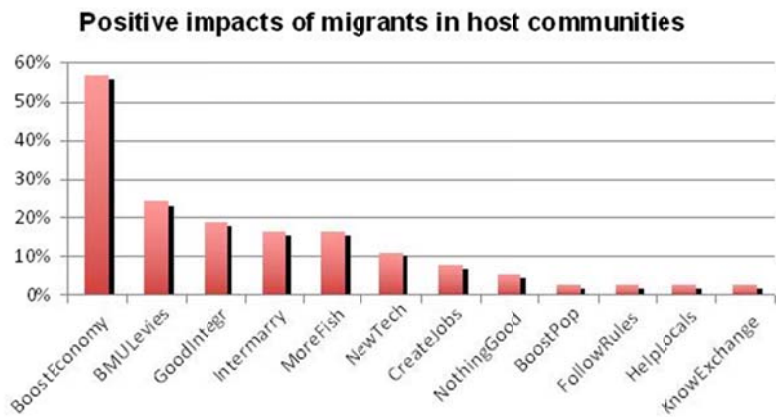


Figure 8.2. Positive impacts of migrants in host communities, as perceived by local fishers.

**Social impacts**

The most commonly cited negative effects of migrants were social, and included, for example, womanizing, bad behavior and alcohol and substance abuse. Issues related to women were of particular concern and included problems such as pursuing married women or engaging in sexual activities with minors, thus promoting teenage pregnancies among local youths which cause them to drop out of school. Locals also accused migrants of theft and lack of respect for local culture and customs.

In terms of positive effects, social issues also ranked high. Although cited above as a negative effect, the relationships between migrant fishers and local women leading to marriage was considered a positive aspect, together with good integration, which included good relations and friendships between locals and migrants, and helping locals with fishing gear, rescue at sea, and fish gifts (swahili: *kitoweo*). The introduction of new fishing technology and the transfer of knowledge and skills to local fishers was also

related benefit of having migrants. Migrants were seen as boosting the population of often small local communities, which was thought to contribute to their development.

### *Economic impacts*

Negative economic impacts of migrants include flooding of the local market with fish, which lowers the price per kg of fish and thus affects income levels of local fishers. Another issue identified was related to fish traders. Foreign migrants were sometimes accused of often bringing their own dealers, or being tied to a specific fish trader (often of non-Kenyan origin) (see Section 7), which results in most of the economic benefits accruing to this trader with little economic benefits flowing to the rest of the community.

The most frequently mentioned positive effects of migrants on receiving communities were economic (along with the social benefits described above). Increased non-fishing related business opportunities such as eateries, rents, and other boosts to the local economy were the most frequently cited positive economic effects. This was followed by increased revenue to local BMUs through levies. The increase in fish landings, identified as a negative effect, was recognized as also having a positive side - it improved the availability of fish for consumers and contributes to food security. Increased fish landings also increase the income to BMUs through fish tax. The commonly cited fish tax across all sites was Ksh 2 per kg of fish traded at the auction. Provision of job opportunities for local fishers (on migrant crew/boat) was pointed out as another positive effect of migrants.

### *Ecological impacts*

After social impacts, ecological effects were the most frequently mentioned negative aspects of having migrants in local communities. Use of destructive gears accounted for a high proportion of the bad things perceived to be related to migrants. Destructive gears included those that damage habitats such as corals and seagrasses and catch juveniles. Other negative effects included the fact that migrants catch a lot of fish and that fish catches in areas frequented by migrants are perceived by some locals as declining.

Our data show no major differences between local and migrant fishers with respect to the species targeted and reportedly caught. However some discrepancies exist in terms of the habitat targeted and the effort put in. Migrants report more frequent use of open water fishing areas, and also higher levels of daily fishing effort (7.7 hours/day compared to 6.0 hours/day for local fishers), resulting in an overall fishing effort which is higher for migrant (188 hours/month) compared to local fishers (150 hours/month). Reported catches on a good day are also strikingly higher for migrants (514 kg compared to 154 kg) and indicates that on average migrant fishing units have the potential to catch significantly more than local crews. This does not automatically translate into

higher ecological impacts of migrant fishing operations, as many of these operations tend to target more pelagic, schooling stocks which allow for larger bumper catches.

### *Effects on institutions*

In Kenya we observed very little conflict over fishing grounds, but on average 64% of locals (across all sites) agreed that conflicts with migrant fishers did exist in their communities (Section 7). Non-compliance with rules and regulations was cited by locals as a problem related to migrants. In addition migrants were accused of often fishing without valid permits. For example, migrants are cited to enter Kenya with visitors' permits but proceed to fish and trade. These can be seen as being negative institutional effects of migrants. However, none of these impacts were included among the more frequently cited impacts. Seine nets were reportedly used by migrants in our survey and these gears are illegal. The use of illegal gear could also be seen as an institutional issue which requires attention.

Looking at the issue of regulations and awareness of these in more detail we see that in total 66% of interviewed fishers were aware of any regulation related to fishing in the sites they were interviewed, while 30% were not aware of any regulations and 3% did not provide an answer (Table 8.1). Eighty-four percent of locals were aware of any regulations compared to only 56% of interviewed migrants. The most frequently cited regulations (among both fisher categories) were: banned use of illegal gears, the need to pay taxes on fish landed and licences to fish, as well as prohibitions to fish in MPAs or closed areas. Of these, illegal gears were more frequently cited by locals than migrants, while recognition of payment of licenses or taxes, and no-take areas were similar between locals and migrants. Regulations referred to as 'no overfishing' were more frequently cited by locals while migrants more often cited regulations on the catch of juvenile fish.

Table 8.1. Number of respondents who were aware of fishing regulations. Percentages indicated in parentheses.

	Aware of regulations		
	NA (%)	N	Y
Local	1(3)	5(14)	31(84)
Migrant	4(6)	27(38)	40(56)
Grand Total	5(5)	32(30)	71(66)

We also asked all respondents if they were aware of any local organizations involved in making decisions about when, where and who can fish in the area. Local fishers appear to be more aware of local organizations than migrants. Of the local fishers surveyed 73% said they were aware of organizations while only 45% of migrants responded affirmatively to that question. In terms of the organizations that fishers mentioned, BMUs were the most frequently cited by all, followed by the Fisheries department. BMUs were mentioned by approximately half of local fishers (51%) and by about one

third of migrants (37%). Awareness of the Fisheries department was higher amongst locals (38%) than migrants (18%).

A higher percentage of local fishers participated in BMUs compared to migrants. Of local fishers who mentioned BMUs as one of the organizations they knew about, 74% said they participated in some way in these organizations. Of migrant fishers, 54% of those aware of BMUs said they participated. Looking at the type of participation, it is worth mentioned that there was a higher proportion of migrant fishers that participated actively in BMUs (43%) compared to locals (36%), although this is not likely to be statistically significant.

The data presented thus far in this section indicates an awareness of local regulations and institutions by migrant fishers, even though to a somewhat lesser extent than among locals. An interesting question that remains to be explored is how fishers' migration interacts with the local management of fisheries resources, such as that carried out by BMUs. The National Guidelines for BMUs in Kenya states that two of the many benefits expected to accrue from BMUs are, the ability to raise local revenue for their operations and for fisheries management, and reduction of migration of fishers and easy monitoring of the fishing effort. However, although the guidelines mention that a work plans has to be submitted every year but does not state what should be included in such a plan. As such no clear link is made in the document to how the BMUs are to develop the guidelines underpinning the management of the natural resource they are supposed to carry out. This is noteworthy for two reasons. First, the monitoring of BMU success and or progress largely relies on properly formulated goals. Without clear management goals relating to the status of the resource, how can management performance be assessed? Second, the lack of a clearly articulated need to establish resource management plans, and the type of resource information and goals which BMUs are to strive for, it is questionable how these management bodies will be able to legitimately regulate fishing effort, including migrant fishers arriving from other parts of Kenya. How will a BMU know if the resource is under pressure, how many fishers to allow, and consequently, how many migrant fishers should be allowed, and using which gears?

Lack of proper source of funding for BMUs, is stated in the guidelines as a risk which may stifle their sustainability. Furthermore, BMUs are expected to generate funds from the fisheries industry for funding their operations in the form of e.g. membership fees, annual registration fees, and landing site user fees. The self financing set-up of BMUs, in combination with the lack of clearly stated goals relating to the management of the resource, clearly opens up the opportunity situations where the strive to generate funds provides strong incentives to allow increasing numbers of fishers to the landing site. Examples of this is seen under the sections of economic impacts above, where increased income to BMUs from migrant levies is cited as an important economic benefit. Incomplete knowledge of fish stocks and habitat status could make it increasingly difficult for BMUs to refuse fishers, at least those arriving from within Kenya. We see the



vagueness in the stipulated requirements of BMU roles and responsibilities as a potential for creating such perverse incentives. An example from Ngomeni is illustrative. Presence of migrant fishers at Ngomeni destabilised the working of local BMU due to a lack of transparency and unified approach in dealing with issues related to migrant fishers. Consequently, some respondents felt that only a few BMU leaders benefitted directly from the presence of migrant fishers.

## TANZANIA

The perceptions about benefits and drawbacks of receiving migrant fishers into their community, varied among local fishers. Some trends can nonetheless be seen and are presented in Figures 8.3 and 8.4.

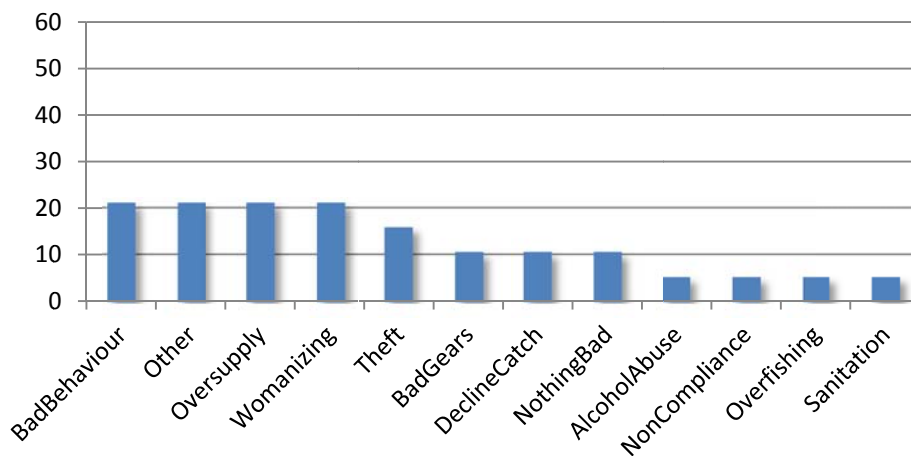


Figure 8.3. Negative impacts of migrants in host communities, as perceived by local fishers in Tanzania.

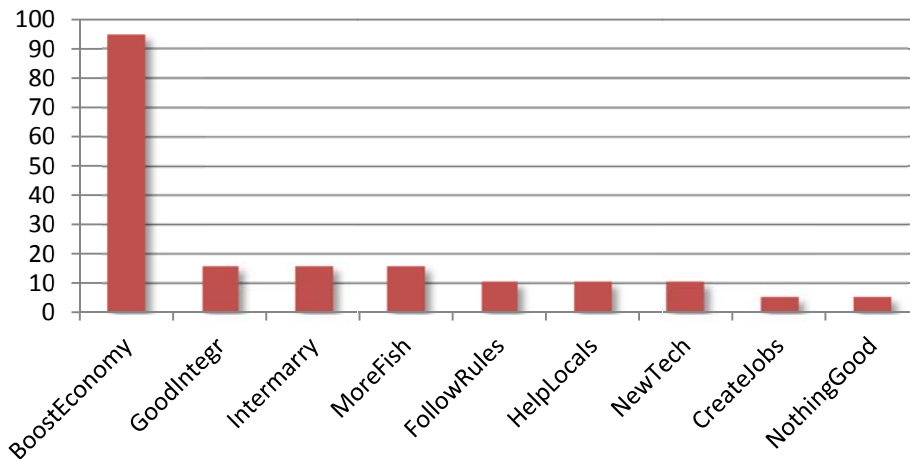


Figure 8.4. Positive impacts of migrants in host communities, as perceived by local fishers in Tanzania.

### *Social impacts*

Like in Kenya, the most commonly cited negative impacts of migrants were social and related to bad behavior and womanizing. Issues related to women were of particular concern and included problems such as pursuing married women. Key informants reported anecdotes of migrant fishers putting money into the mouths of fish which were subsequently offered as gifts to local women, some of whom were married, as a form of courtship. This was not looked upon well by local fishers. Theft and alcohol abuse were also cited as problems with migrant fishers.

In terms of positive impacts, many locals felt there was actually a fairly good integration of migrants into the local community and this was seen as something positive. This integration is achieved by migrant fishers marrying local women and when this is done 'right' – i.e. the migrants provide for their local family, this is seen as something beneficial for the village.

### *Economic impacts*

Negative economic impacts of migration cited by locals were primarily associated with oversupply of fish, which was believed to flood the market and reduce the prices with negative effects on income for local fishers. Declining catches could also be seen as an issue with potentially negative economic effects for local communities.

Among the positive economic impacts, the boost to the local economy was by far the most frequently cited benefit of all, and surpassed any other type of benefits perceived, including social, institutional and ecological. Like in Kenya, most locals interviewed felt that spill-over effects from an increased presence of migrants, and the trade they generate, generated economic benefits in the form of increasing business for eateries, housing rentals and similar things. The fact that migrants also catch and land additional

amounts of fish in the village was seen by some as a good thing, since it increases the supply and brings down the prices even for local consumers. The creation of jobs was also mentioned by some, and such jobs tended to be related to fishing, i.e. the availability of additional crewing opportunities for locals.

### *Ecological impacts*

Ecological impact were primarily mentioned in the context of bad gear use. Migrants were sometimes accused of using methods which were either banned or which were perceived as destroying habitat. Overfishing was also mentioned as a negative impact and is related to both an increase in the amount of fishers arriving into the communities over time as well as the increased fishing effort exerted by migrant crews. To illustrate this in somewhat more detail we can examine the data on catch per day.

As already outlined above, migrants tend to spend longer hours at sea than local fishers (see section 4). Data also show some differences between the species caught (self-reported) by migrants and local fishers, as described above (section 4). In addition, some differences were seen in terms of the habitat targeted by locals and migrants, where locals target rocks and mud or sand flats more frequently, while migrant fishers instead target open pelagic waters more frequently (Figure T3). Examining the self-reported catches of migrants and locals there are some interesting discrepancies which mirror those found among sites in Kenya. Reported catches on a good day are not very different, but the average catch on normal days for migrants (204 kg/day) is almost four times that of local fishers (61 kg). Catch on a poor day does not differ. As noted in the Kenyan section, however, this does not automatically translate into higher ecological impacts of migrant fishing operations, as many of these operations tend to target more pelagic, schooling stocks which allow for larger catches.

### *Effects on institutions*

Relatively few respondents reported conflicts between local and migrant fishers. Eighty-four percent of locals and 95% of migrants said they had never been involved in a conflict with locals, and only 37% and 15% of locals and migrants respectively, reported being aware of such conflicts. This is interesting as there still appears to be a significant overlap in terms of use of fishing areas. Data shows that in Kunduchi 90% of migrants claim to always be fishing in the same area as locals, and in Moa the figure was 75%.

Non-compliance and use of bad gear was cited by locals as something which had negative impacts on the community. However, neither of these was included among the more frequently cited impacts.

Looking at the issue of regulations and awareness of these in more detail we see that in total 80% of interviewed fishers were aware of any regulation related to fishing in the sites they were interviewed, while 13% were not aware of any regulations and 7% did not provide an answer (Table 8.2). Comparing across the sample, locals were slightly

more aware than migrants but in both samples those who were aware of regulations were among the majority.

Table 8.2. Number of respondents who were aware of fishing regulations. Percentages indicated in parentheses.

	Aware of regulations		
	NA (%)	N	Y
Local	1(0.5)	2(10)	16(84)
Migrant	3(7.5)	6(15)	31(78)
Grand Total	4(7)	8(13)	47(80)

Respondents were also asked if they were aware of any local organizations involved in making decisions about when, where and who can fish in the area. Local fishers (74%) appear to be somewhat more aware of local organizations than migrants (63%). In terms of the organizations that fishers mentioned, the Fisheries Department was the most frequently cited by all, followed by the Mazingira (local environmental organizations).

Of the local fishers who were aware of any organizations involved in fisheries management, 43% participated actively, while 10% participated passively, and 21% did not participate at all. Active participation was defined as not just paying a fee but partaking in meetings and engaging actively in discussions around topics in these meetings. Of migrant fishers the equivalent figures were 7.5% for active participation, 32.5% for passive participation, and 27% who did not participate at all.

Summarizing these results we can see that conflicts between migrants and locals over fishing grounds appear to be minimal at the sites studied, despite significant overlap between the fishing ground used by locals and migrants. Regarding awareness of institutions the awareness is fairly equal among both types of fishers although the active participation in fisheries related organizations is significantly higher among locals.

## *MOZAMBIQUE*

Local perceptions of the impact of migrant fishers were explored by asking local fishers what is good and bad about having migrants in their communities. Responses are presented in Figures 8.5 and 8.6 and are summarised under ecological, economic, social and institutional impacts. These impacts were also explored in semi-structured interviews with local fishers and a wider range of key informants.

### *Ecological impacts*

When asked about what was good about having migrants in their communities, many local fishers overtly said that ‘there is nothing good about migrants’, which accounted for almost a third of all responses as shown on Figure 8.5. The negative view of migrants

held by local fishers is largely due to the latter blaming the former for using destructive fishing gear, especially mosquito nets, destroying fish habitats and fishing very intensively. Conversely, to the question about what is bad about having migrants, the most frequently mentioned aspects were destruction of fish habitats, catching small fish, fishing intensively, using bad gears, not complying with fishing regulations, catching large amounts of fish and for generally being the cause of declining fish catches.

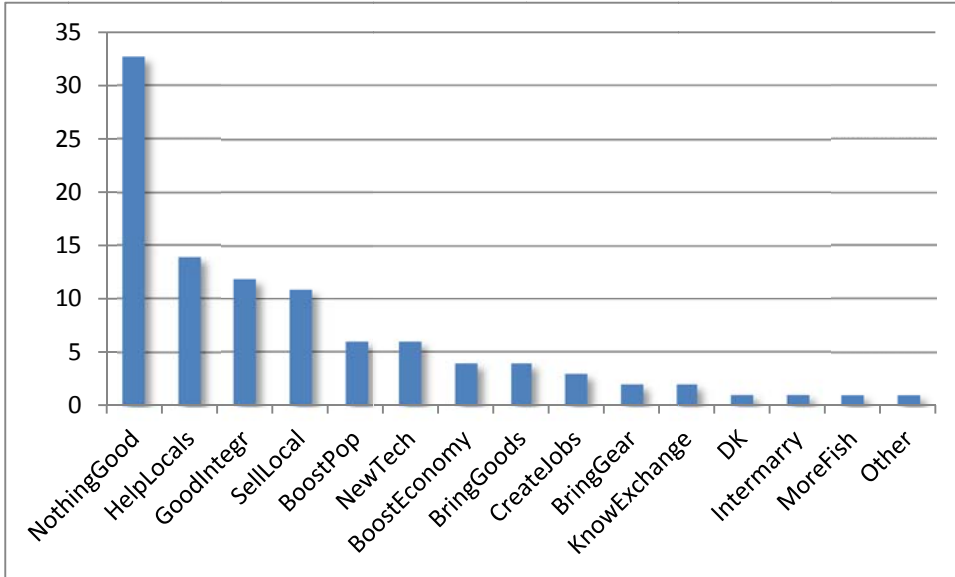


Figure 8.5. Postive impacts of migrants on communities of destination as mentioned by local fishers

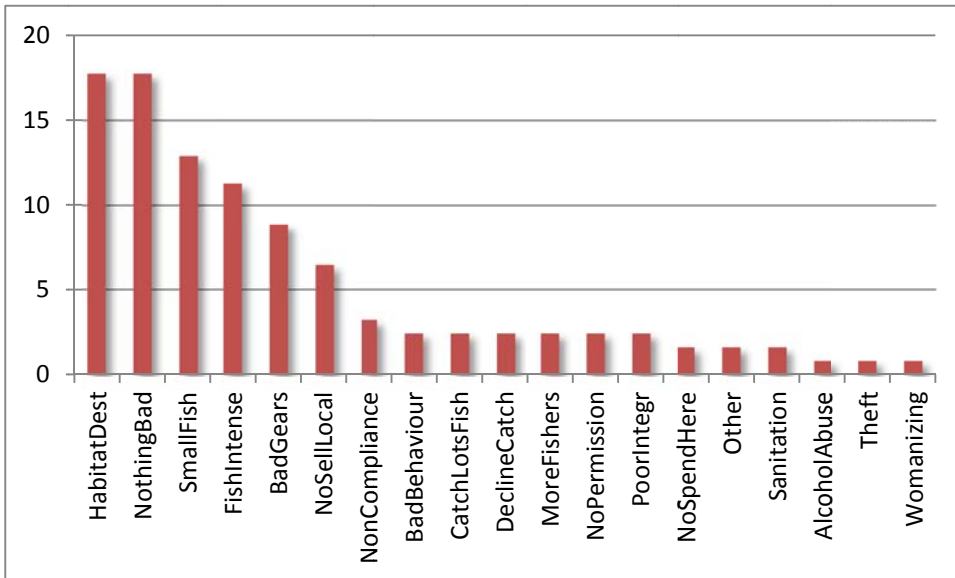


Figure 8.6. Negative impacts of migrants on communities of destination as mentioned by local fishers

Most of the locals we interviewed are concerned with the effects that migrant fishers are having on fishing resources. Interviewees often pointed out that migrant fishers fish much more intensely than locals and catch significantly larger quantities of fish. The Mozambican migrant fishers from Nampula Province are highly efficient fishers. Their large catches appear to be due to a combination of factors, including superior fishing skills, better organised fishing operations and fishing gear, and often larger and more seaworthy fishing boats.

Migrant fishers from Nampula Province are used to fishing in much more challenging conditions at home which gives them a comparative advantage over locals at destination. Around Nacala and other areas where many of the Mozambican migrants originate, the coastline is more exposed and, in most places outside bays, waters soon become deep. This contrasts with Cabo Delgado where the Quirimbas islands offer sheltered conditions along a vast stretch of coast and, also important, somewhere within easy reach for fishers to take shelter if bad weather surprises them. This means that migrants are capable of fishing where local fishers do not normally venture and in weather conditions that discourage most locals. It also means that migrants are able to access less exploited areas and therefore are more likely to result in larger catches. Interviewees mentioned several fishing grounds known for yielding bumper catches that locals only reach under exceptionally good conditions, but which are frequently visited by migrants.

Beyond skill and experience, fishing gear is another factor believed to make migrants efficient fishers. Local fishers often say that migrants have much better fishing gear. However, locals and migrants use similar types of gear with the exception of Tanzanian fishers who fish with light assisted purse nets, which is not yet widely used locally. Better gear in this case can mean more nets per boat, and often bigger and newer nets. According to information provided by interviewees, migrants also have better boats, often larger or better maintained, although engines are still rare. Many local fishers use dugout canoes with a reduced fishing range. Dugout canoes are also widely used by migrants, but their canoes called *cangaias* are different from those of locals. They are normally longer and the hull is slightly v-shaped, which confers them greater speed and manoeuvrability. Some migrants also fit these canoes with sails made out of plastic sheets, which gives them greater capacity to reach more distant fishing grounds.

There are also important differences between the way migrants deploy some gear and organise their fishing operations. Examples include seine nets and traps. Migrants employ divers to locate fish shoals and direct them to seine nets whereas locals do not. Locals use traps mainly as a passive gear that are anchored on the sea bed and left overnight. Migrants bait small traps and suspend them in the water column for short periods of time, repeating the procedure several times during a fishing trip.

With regards to ecological impacts, local fishers accuse migrants of using destructive fishing gears (bad gear), including mosquito nets, and of breaking corals to drive fish out

of their hiding places while spear fishing. It was not possible to establish whether migrants are using destructive gear or if indeed they are any more likely to use such gear compared to locals. However, while undertaking fieldwork at one of the field sites we witnessed sacks being used on fishing nets and the catches included many juveniles. Even though these may be isolated cases, they arouse disgruntlement in local communities. As one interviewee said: 'migrants are causing a lot of destruction; when there is no more fish here they can go to Palma or Mocimboa while we do not have that option' (Anonymous, Quirimba Island, 23/07/2009).

### *Economic impacts*

Some of the positive aspects of having migrants identified by local fishers in surveys were of an economic nature and included selling fish to the local community (SellLocal in Figure 8.5), bringing various types of goods (BringGoods) and fishing gear (BringGear) from their areas of origin to sell locally, and employing locals (CreateJobs). In interviews, other kinds of benefits were also mentioned, including improving supply of fish, payment of fishing licenses, opening of wells, and spending at local shops.

In most host communities, migrants have boosted fish trade significantly and motivated the expansion of other businesses such as transport of people and products in large sails boats and the supply of freshwater to the islands. Although locals are also involved and benefit, many of these economic opportunities have also been taken up by migrants. Many fish traders followed the fishers from their areas of origin.

### *Social impacts*

In the same way as local fishers said that there was nothing good about having migrant fishers in their communities, many also said that there was nothing bad (NothingBad in Figure 8.6). Benefits of a social nature included helping locals in a number of ways, including offerings of fish to elders (HelpLocals), creation of friendships between migrants and locals (GoodIntegr), boosting the local population (BoostPop), introduction of new fishing technology (NewTech), exchange of knowledge and experience (KnowExchange) and intermarriages. On the negative side, local fishers cited social problems such as causing trouble and not observing local customs (BadBehaviour), drinking, theft and womanizing.

Marriage of migrant fishers with local women is increasingly common. Migrant fishers mentioned marriage as a way of living a more comfortable life which comes with having a wife and a house. They also said that getting married improves their integration in local communities, especially in terms of improving acceptance. Some locals saw marriage as a positive thing, because migrants settle and contribute towards the development of the community. However, locals also cited problems, including the fact that migrants are seducing local women and breaking up families. For local women, it appears that migrants make desirable husbands. This is because they often have more money than locals, because they catch more fish. Cases where migrants married locals

and then abandoned them when they left were also mentioned. Some locals say that migrants only get married so that they can stay and fish without being hassled.

### *Effects on institutions*

In Mozambique, low levels of conflict were observed between locals and migrants. In the surveys, approximately half of both the local and migrant fishers were not aware of any conflicts (52% and 54% of locals and migrants respectively). The existence of conflicts was slightly more readily admitted by locals than by migrants - 37% and 26% respectively said that there were conflicts. The rare occurrence of conflicts in Mozambique is also reflected in the fact that most locals and migrants alike said that they had never been personally involved in any conflicts with the other group (80% and 90% respectively). From the perspective of locals, the conflicts that do emerge are mostly about the alleged use of bad gears by migrants, chasing local women, competition over fishing grounds, non-compliance with fishing rules, destruction of fish habitats, gear theft and migrants catching more fish. From the perspective of migrants, conflicts are mostly about locals saying that they do not want them in their communities, about the fact they catch more fish than locals and are sometimes accused of using witchcraft to get high catches, are accused of quarrels and disturbances related to alcohol abuse, competition over fishing grounds, locals accusing migrants of taking over the market for fish and monopolising the fish market, migrants not respecting fishing regulations. Gear theft and womanising were also mentioned, but only once respectively which shows that migrants consider such problems far less serious than locals.

With regards to regulations and awareness of these, the surveys showed that most fishers were aware of some type of fishing regulation. A slightly higher proportion of migrants said they were aware of fishing regulations (81.7%) compared to locals (75.3%) as shown in Table 8.3.

Table 8.3. Awareness of fishing regulations by local and migrant fishers

	Aware of regulations		
	NA (%/#)	NA (%/#)	NA (%/#)
Local	2.4 (2)	22.4 (19)	75.3 (64)
Migrant	2.4 (2)	15.9 (13)	81.7 (67)
Grand Total	4	32	131

In terms of the types of regulations fishers were aware, these included prohibition to catch certain protected species, particularly turtles; regulations about prohibited gear (bad gear), especially mosquito nets and other small mesh nets; not catching small-sized fish (i.e. juveniles); not destroying fish habitats; and specific fishing laws such as closed areas and sanctuaries. There were also no significant differences in terms of which types of regulations migrants and locals were better aware as seen from Table 8.4. Number between parentheses represent the number of times a particular type of regulation was



mentioned, which were transformed in percentages of total number of regulations mentioned by respondents.

Table 8.4. Awareness of fishing regulations by migrants and locals

<b>Regulation</b>	<b>Locals (% / #)</b>	<b>Migrants (% / #)</b>
Protected Species	38.7 (48)	36.5 (58)
Bad Gear	22.6 (28)	15.1(24)
Small Fish	15.3 (19)	18.2 (29)
Habitat Destruction	14.5 (18)	14.5 (23)
Other Laws	6.5 (8)	11.9 (19)
Other	2.4 (3)	3.8 (6)

We also asked all respondents if they were aware of any local organizations involved in making decisions about when, where and who can fish in the area. Most fishers, local and migrant alike, are aware of local organisations. Migrants, however, appear to be slightly more aware of local organisations than locals (89% and 75% of migrants and locals respectively responded affirmatively to this question). In terms of the organisations that fishers said they were aware of, Community Fisheries Councils (CCPs), the Institute for the Development of Small Scale Fisheries (IDPPE), the Maritime Administration (ADMAR) and the Quirimbas National Park (QNP) were the most frequently mentioned. Fishers could mention more than one organisation. CCPs were by far the most frequently mentioned organisation, accounting for 44% of all organisations cited by locals and 47% of those cited by migrants, followed by IDPPE (18% and 23%) and ADMAR (16% and 13%). CCPs are community level fisheries co-management organisations, while IDPPE is a government agency under the Ministry for Fisheries that provides extension services to artisanal fisheries and monitors fish catches at landing sites. Most CCPs have been set up with the assistance of IDPPE. ADMAR issues fishing and boat licenses and is also responsible for monitoring and enforcing fisheries regulations.

If we look at the percentage of locals and migrant fishers in our sample that mentioned CCPs, we find that a slightly higher percentage of migrant fishers mentioned CCPs compared to locals (73% and 64% respectively). This is probably a reflection of the fact that there is considerable interaction between CCPs and migrants. At some sites migrants need to report to CCPs upon arrival in order to be granted permission to fish, although not all do. CCPs at most sites are also likely to approach migrants for a variety of other reasons, especially to check compliance with licensing laws and gear regulations.

We also asked fishers if they participated in some way in the organisations they were aware of, and how they participated, whether in a mostly active or passive way. In Mozambique, participation in the survey was explained to fishers as consisting of attending meetings organised by the organisation or being a member. Active

participation was explained as usually expressing one's views at meetings or being an active member or a leader. Passive participation meant going to meetings but usually listening more than talking. Of those local fishers who mentioned CCPs as one of the organizations they knew about, 58% said they participated in these organizations. Of migrant fishers, 75% of those aware of CCPs said they participated. Looking at the type of participation, it is worth mentioned that there was a higher proportion of local fishers that participated actively in CCPs (55%) compared to migrants (31%). In the field, we observed that most CCPs have few active members overall, and rarely have migrant members. The difference in terms of rates of participation between migrants and locals in CCPs is not large enough to be very significant. But I may be that migrants participate more in meetings called by CCPs as a way to defend their interests given that their presence in local communities tends to be an issue.

## *COMOROS*

### *Social impacts*

Migrants provide extra funding to the local fishing syndicates described above. This occurs through payment of membership fees. Catch is usually sold as soon as it is landed on the beach to female fish traders who may be friends or family of the fishers. Local fishers sometimes get better prices because of local contacts although conflict was mentioned because of migrants selling fish at a cheaper price. However, crews were often mixed (migrant and local) thus helping to standardize prices. Local respondents state that migrants sometimes take most of their catch back to origin, resulting in a lack of fish in the destination village. Given the lack of storage facilities this would only be possible for the last day's catch, or for commuters rather than migrants (the islands are approx 2 hours apart by local boats). If a migrant is only in a destination for a few days, then one day's catch may be a relatively sizeable amount.

In some places, like the Moheli Marine Park, which has a history of fishers' migration into villages within the park, poor enforcement of rules has made access by migrants easy. But it has also reduced the willingness of local fishers to abide by regulations when they see migrants coming in and breaking rules (Hauzer et al. 2008).

Migrants may own small businesses in destination village e.g. restaurants, selling coconuts, selling fishing gear (hooks and line). This is generally viewed as something positive as it increases the integration between migrants and locals and it also supports the local economy.

### *Institutional and economic impacts*

Key informant interviews with local fishers indicated that migrant sometimes use illegal techniques (particularly chumming by Anjouanais). However, this normally resulted in them being sent away or forced to stop fishing. Migrants were often perceived by locals

as expending more fishing effort – rather than necessarily indicating a higher fishing pressure, locals indicated this is because they are not as skilful and do not know the fishing areas as well.

### *Summary*

To be able to assess the ecological effects of migrant fisher, and compare this with that of locals would require a much more extensive ecological survey combined with catch statistics of migrant and local fishing units. The current set up of registering catch landed and sold in most countries does not allow for this differentiation among migrants and locals and hence our data cannot address ecological impacts fully.

We explored both positive and negative effects of migration on communities of destination. Drawing on some of the generalities across the three countries, in Kenya and Tanzania, migrants are perceived to make a significant contribution to local economies through trade and other business opportunities that their presence and activities encourage and sustain. This contrasts with Mozambique, where the economic benefits of having migrants are not generally perceived as being very important beyond the increased availability of fish. This may be because migrants do not spend much in local communities, instead often bringing food and other products from their home areas where such items tend to be cheaper. In fact, some migrants bring products to sell to locals. Migrants living in fishing camps, which are common in Mozambique, are even less likely to spend in local communities because these camps have their own migrant-owned stalls selling products. The presence of migrants has undoubtedly boosted fish trade across the region, but the resulting economic benefits to local communities varies between countries and sites, depending largely on how the fish trade is organised, including who controls it. In Kenya, for example, much of the fish landed by migrants is sold to traders of Kenyan origin, and a large proportion is consumed locally. In Mozambique, many fish traders are also migrants, and much of the fish is processed (salted and dried) and is exported to other areas of the country and to Tanzania.

Migrants have also had a positive effect in terms of generating revenue for local management in terms of levies and fees. This is the case of Kenya, where migrants are contributing substantially to the finances of local BMUs. In Mozambique, many CCPs are not yet sufficiently well-organised to collect fees from migrants, but this will be only a matter of time, and government guidelines themselves suggest that one of the potential sources of revenue for these bodies are migrant fees (GoM 2003). Given the weakness of government-driven, top-down enforcement of fisheries regulations across most of the region, great hopes are being placed on co-management bodies such as BMUs and CCPs as a means to improve the management of fishing resources. For these institutions to operate effectively, they will need sources of financing. In Mozambique, one of the factors that appear to constrain the action of CCPs is the lack of financing to compensate leaders for the time they spend in patrolling and rule enforcement actions. In practice, without some form of financial compensation, there is little incentive for

individuals to volunteer their time. Those taking up leadership positions are the better-off, which can afford to contribute their time. In Mozambique, many CCPs are headed by traders and local businessmen and not by fishers. It is clear that local management institutions need funds to operate and levies and fees collected from migrants are an important source of financing. However, this may also have a 'perverse' effect if, in their drive to generate profits, BMU start paying inadequate attention to resource sustainability matters and the views of local fishers when issuing permits for migrants.

Other positive effects of migrants recognised across the region are of a social nature, mainly in terms of the relatively easy integration of migrants into local communities, a process which is facilitated by linguistic, cultural, ethnic and religious similarities. Migrants appear to settle well into local communities, forming friendships with locals that are mutually valued, and often intermarrying. Experience and knowledge sharing and technology transfer were also recognised across the region as benefits of having migrants. Intermarriage has the effect of enhancing the rights of migrants to resources and poses challenges to local management institutions that can no longer simply consider these fishers as outsiders. Also reflected in the social relations between migrants and locals are the relatively low levels of conflicts between the two. Conflicts involving migrants were reported at all sites, but with some exceptions, these are rarely problems of significant proportion. There appear to be relatively few conflicts over fishing grounds, which is partially a result of migrants and locals sometimes targeting different resources and using slightly different gears. Although we found no significant differences in gear use between locals and migrants in our sample, we noted that gears targeting and landing large quantities of small pelagic species are used mostly by migrants as in the case of ringnets in Kenya and light assisted purse seines in Mozambique, both used by Tanzanians.

In general, the main concern that local communities have in relation to migrant fishers is the effects they have on fishing resources, particularly in terms of overfishing and the use of bad gears and fishing practices that are either banned by law or that locals perceive as being detrimental to fish and their habitats. Self-reported data from our surveys indicates that migrants catch more fish than locals. This does not automatically translate into higher ecological impacts of migrant fishing operations, as many of these operations tend to target more pelagic, schooling stocks which allow for larger bumper catches. There is no evidence to suggest that this volume of catches is unsustainable, particularly given limited data on fish stocks targeted by artisanal fishers and fish landings across the region, just as in most multi-species, multi-gear fisheries in the developing world. To be able to assess the ecological effects of migrant fishers, and compare this with that of locals would require an extensive ecological survey combined with catch statistics of migrant and local fishing units. The current set up of registering catch landed and sold in most countries does not allow for this differentiation among migrants and locals and hence our data cannot address ecological impacts fully.



Landing site at Mocimboa da Praia, Mozambique (Photo: S Rosendo)

## 9. Issues facing migrants

While away on fishing related migrations migrants are likely to face a number of issues. To better understand these and to get a preliminary overview of the range of these issues, our surveys asked migrants to list and explain both positive and negative aspects that they perceived to be associated with fishing migration. Below we summarize these positive and negative aspects of being a migrant under each country sub-section. We then discuss issues related to health and other vulnerabilities similar to all countries in an integrated section at the end.

### 9.1. Positive and negative aspects of being a migrant

#### *KENYA*

In Kenya the list of negative issues associated with migration was topped by being away from home (Figure 9.1). As in Tanzania, some of this perceived difficulty lay in not seeing the children for prolonged periods of time as well as missing other members of the family, such as the wife and parents. Difficult living conditions and poor access was described by many and included both hazards at sea but also the often sparse sleeping and eating arrangements. Many fishers, especially those who intend to save as much money as possible, sleep on board the boat. This is also a way of safeguarding gear and other equipment. In some landing sites migrant fishers also have difficulty accessing both fresh water and toilet facilities (see below). Conflicts were also mentioned in this context as several migrants had experienced or heard of conflicts at some landing sites.

Positive experiences associated with migration included many of those already treated under drivers of migration in section 5. Notably, as in Tanzania, good relations with local communities appeared among the top cited positive aspects (Figure 9.2). This indicates that migration is often more than merely an economic decision, but one that includes social aspects.

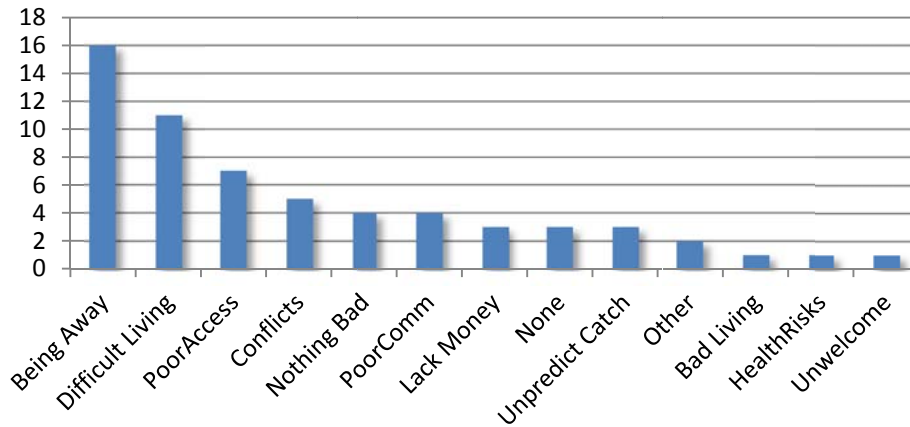


Figure 9.1. Negative aspects associated with fishing migrations, as perceived by migrant fishers interviewed in Kenya. Numbers indicate number of mentions.

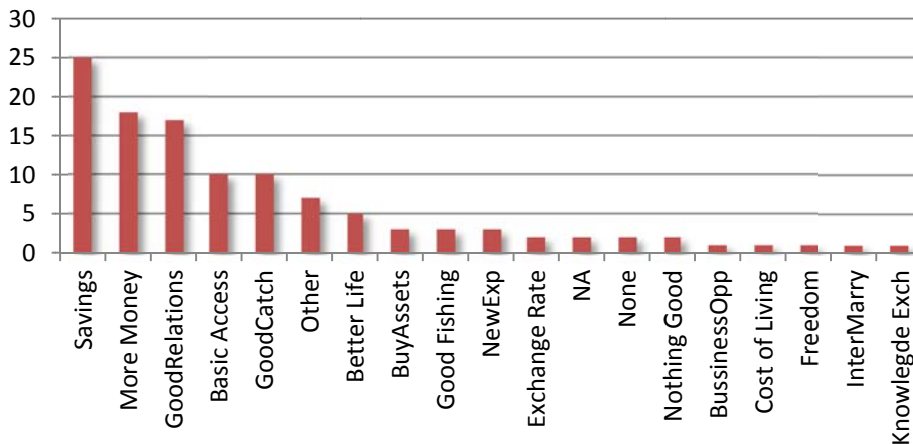


Figure 9.2. Positive aspects associated with fishing migrations, as perceived by migrant fishers interviewed in Kenya. Numbers indicate number of mentions.

## TANZANIA

In Tanzania, the issues that were most frequently mentioned as negative with migrating were being away from the home and family (Figure 9.3). Not seeing the children for prolonged periods of time as well as missing other members of the family, such as the wife was included in this category. Difficult living conditions were also mentioned by a number of fishers. On the other hand, a surprising number of people felt there were no real negative aspects of being away on migration, as can be seen in Figure 9.3.

The fact that fishers do perceive positive aspects associated with migration was to be expected, given that these migrations are undertaken voluntarily. As such, they overlap to a great extent with the drivers of migration elaborated on in section 5. Aspects that overlap are primarily, the importance of earning and saving money, as well as attaining a better life and looking for new or better markets (Figure 9.4). It is interesting to note that positive aspects are also associated with things such as marriage in the areas of

destination, as well as social aspects such as having good relations with locals and experiencing new things.

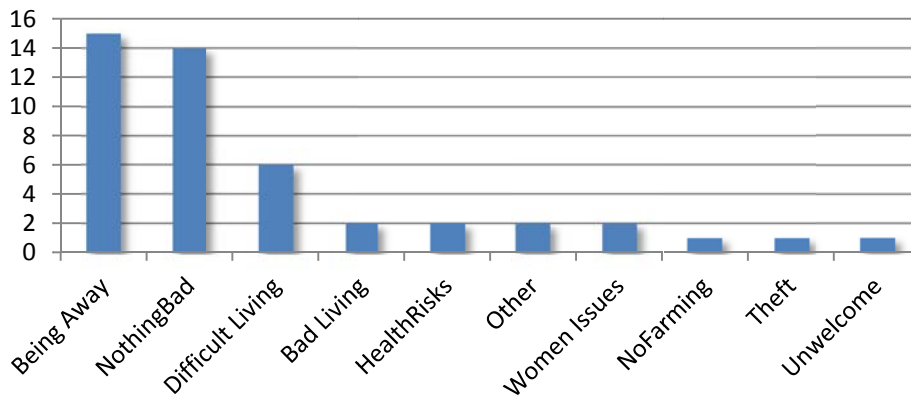


Figure 9.3. Negative aspects associated with fishing migrations, as perceived by migrant fishers interviewed in Tanzania. Numbers indicate number of mentions.

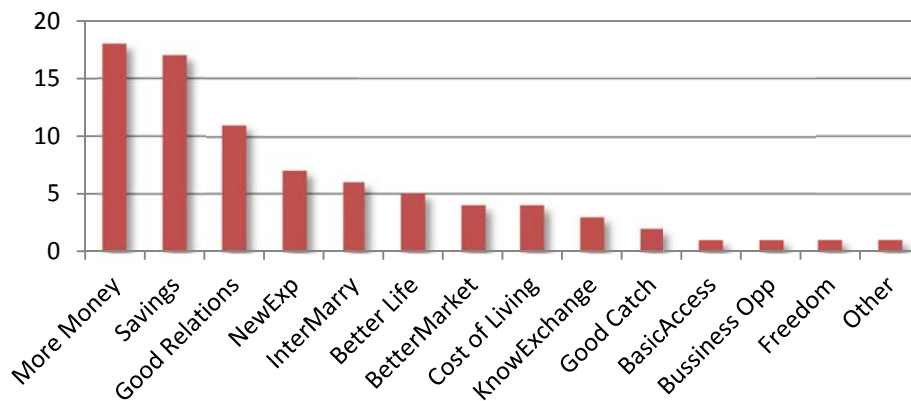


Figure 9.4. Positive aspects associated with fishing migrations, as perceived by migrant fishers interviewed in Tanzania. Numbers indicate number of mentions.

### MOZAMBIQUE

For Mozambican migrant fishers, migration appears to be mainly a positive experience with various economic and social benefits. When asked about the negative aspects of being away on migration, many fishers said that there was nothing bad as seen in Figure 9.5. The main difficulties that fishers perceived were related to being away from home, including missing their families and worrying about their well-being. Fishers also mentioned poor access to certain basic needs, in particular food and shelter; conflicts and disagreements with locals mainly about building dwellings on community land; and difficulties in accessing gear. A wide range of other negative aspects were also mentioned, but in reduced numbers, including accusations of theft and adultery, competition with other fishers for fishing grounds; difficult living conditions; decline in

fishing resources; lack of money when fishing is not possible because of bad weather or illness; inability to farm at destination; restrictions on fishing as a result of conservation measures; feeling unwelcome in the host community; and problems related to women, including infidelity of wives at home and relationships with local women.

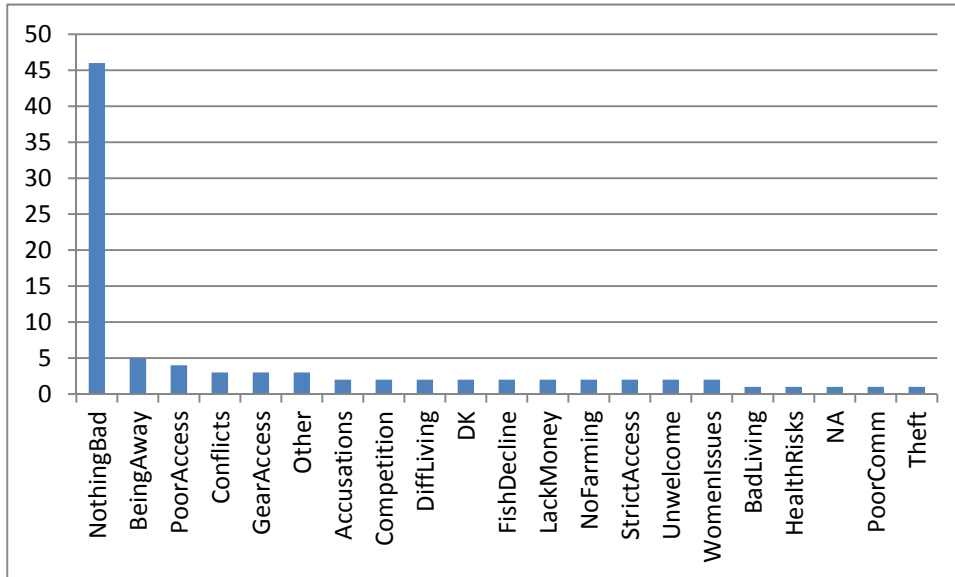


Figure 9.5. Negative aspects associated with fishing migrations, as perceived by migrant fishers interviewed in Mozambique. Numbers indicate number of mentions.

In the survey we also asked fishers about any difficulties they may have experienced with accessing food, water and shelter, which are basic needs essential for well-being. These issues were also explored in key-informant interviews. In the survey, some difficulties in accessing food and water were mentioned. Some fishers said that they depended exclusively on catching fish in order to buy food, and in some cases water. During prolonged periods of bad weather when fishers cannot go fishing, they experience food shortages because some have neither fish to eat nor money to buy food. The same situation arises when they fall ill. While at home fishers can rely on family and potentially on a wider range of income sources, while away in migration they do not have these safety nets and are more vulnerable to factors affecting fishing activities. Problems in accessing freshwater were reported mainly by fishers living in the islands where freshwater sources do not exist and water is brought in from the mainland. During periods of bad weather the boats transporting water do not sail and fishers can be several days without water.



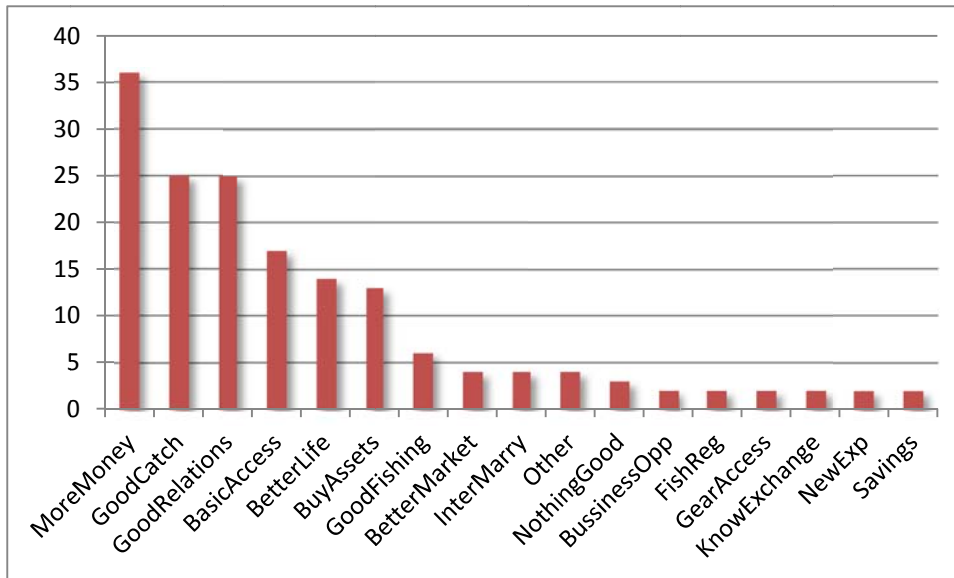


Figure 9.6. Positive aspects associated with fishing migrations, as perceived by migrant fishers interviewed in Mozambique. Numbers indicate number of mentions.

As can be seen in Figure 9.6 fishers mention a wide range of positive aspects of migrating, including earning more money and better catches. An equally important positive aspect of migration appears to be good relationships with locals, including friendships and feeling welcomed by local communities. Fishers also mentioned better access to a number of basic needs, including food and housing and a better life, which is likely to be a reflection of the conditions of hardship at home which motivated many to migrate in the first place. Also mentioned were the ability to save to buy assets; good fishing conditions at destination, especially in terms of the number, accessibility and catch potential of fishing grounds; better markets for fish; and the fact that a number of them have married and have families in host communities.

### COMOROS

One of the difficulties mentioned by migrants of being away from their home was that they missed their families. Some were also concerned for their property left behind at home. Some migrants had small businesses at home to support their family left behind. A few of the younger migrants (teenagers) appeared to have migrated because of problems at home (bad behaviour, not accepted in home community). As they migrate they move away from the problems or bad reputation that they have developed at home and are able to find employment etc.

### 9.2. Health issues and other vulnerabilities

Health issues are an important aspect for understanding the wellbeing of migrants during migrations. Table 9.1 shows the percentages of both locals and migrants who state having experiences health issues. For migrants tis represents the percentage of migrants

who have experiences health issue during a fishing related migration, whereas for locals it represents those that have experiences health issues in the past year.

Table 9.1. Number of respondents who mentioned having had health issues. Figures given in percentage of total sample per respective country.

Number of interviewees that mentioned health issues (%)		
Row Labels	Locals	Migrants
Kenya	62	38
Tanzania	58	53
Mozambique	65	61
Grand Total	63	51

Exploring the most commonly cited reasons for health problems we see that malaria tops the list of afflictions across all countries. It is followed by cholera, although this appears to be an issue mainly among respondents (both migrants and locals) in Mozambique. Typhoid fever is another health problem primarily mentioned among Mozambican respondents. Fishing accidents are mentioned by a number of fishers across all three countries but not to any great extent. These listed health related issues are not associated with migrants only, and in fact both migrant and local respondent alike, appear to be more or less equally afflicted with health issues. As such, no clear trends can be seen suggesting that migrants should be more vulnerable to certain diseases or health related problems than those local communities.

Although there are clearly a number of benefits to fishers who embark on fishing migrations, some do experience hardship. Some of the problems faced by migrants concern access to basic facilities such as food, water and shelter. Table 9.2 summarizes the frequency by which migrants across all three mainland countries claim having experienced problems in accessing these facilities. Migrants interviewed in Tanzania appears to have somewhat more frequent experiences of such problems but our data does not allow us to tease out whether these experiences stem only from migration within Tanzania or whether they are also based on experiences in other countries. Food appears to be a particular problem and a number of fishers describe by explaining how food can often be difficult to access while at sea, or difficulty in buying food during times when catches are low. Access to fresh water is similarly difficult while at sea, and in some migrant destinations of Mozambique and northern Kenya fresh water can in fact be very limited. This includes isolated islands used by migrant fishers as temporary fishing camps. In Mozambique, migrants in Muechanga mentioned the lack of a school in the island for their children as a serious issue they were facing, although this is likely to be a special case since migrants do not generally bring their wives and children to isolated sites with poor access to the most basic facilities

Table 9.2. Number of mentions of experiencing problems in accessing facilities while on migration.

Facility	Kenya	Tanzania	Mozambique	Grand Total
Food	12	17	8	36
Shelter	6	15	8	28
Water	7	17	2	25

Misfortunes while away from home is something which can impact on the wellbeing of migrant fishers. Figure 9.7 is an attempt at summarizing the different types of misfortunes which migrants across all three mainland countries reported during migrations. It shows that theft of gear is an issue particularly in Mozambique, while in Kenya illness is cited as more of an issue. However, the majority of migrants surveyed claimed to have had rather few or no major misfortunes during their fishing migrations.

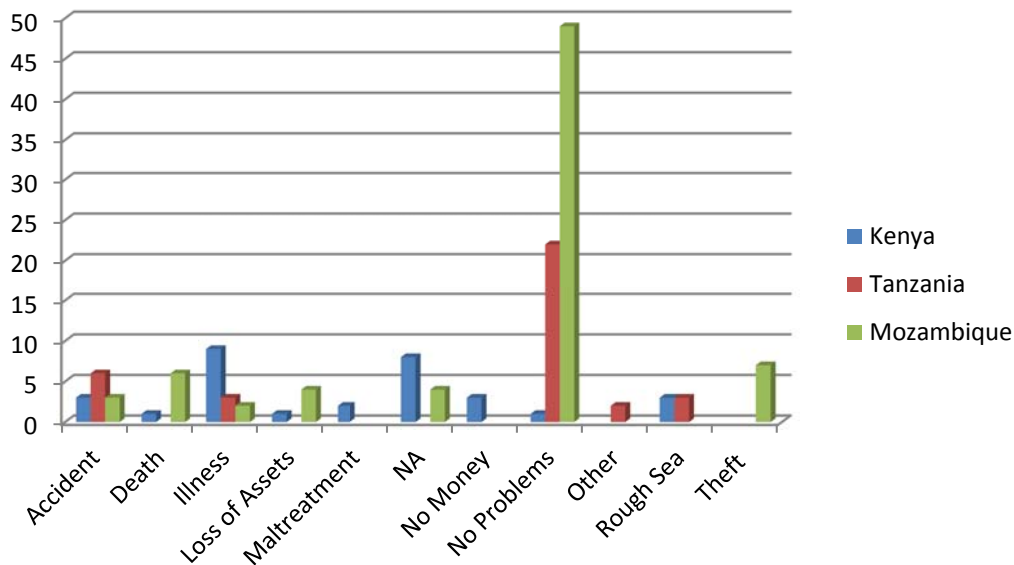


Figure 9.7. Problems or misfortunes reported by migrants in Kenya, Tanzania and Mozambique.

### *Policy on migration as a cause of migrant fisher vulnerability*

One final issue deserves mentioning in relation to migrating fishers. This is related to the current legislation and policy surrounding coastal resources, their management and development.

Transboundary migrant fishers who work as crew in fishing vessels are simultaneously subject to fisheries, emigration and labor laws. In Tanzania, for example, the entry of foreign workers is regulated by the Immigration Act of 1995 and the National

Employment Promotion Service Act of 1999. In all three countries, immigration laws require that all foreigners entering that country must have a valid passport. There are visa exemption agreements between Kenya and Tanzania and between Tanzania and Mozambique, which allow stays for visiting purposes of between 1 month (Tanzania–Mozambique) and six months (Tanzania–Kenya). Foreigners are not allowed to work without a work permit which is normally issued by government employment departments (except in Kenya where applications for work permits are submitted to immigration authorities). Applications for work permits are submitted by a prospective employer on behalf of the prospective employee. Foreign workers must normally also apply for a residence permit, which in some cases is conditional on having been granted a work permit (i.e. Mozambique). The hiring of foreign workers is normally only permitted in cases where there are no nationals with suitable qualifications to undertake that job, or their numbers are insufficient to meet needs. The need for foreign workers is usually determined by labor authorities and the likelihood of small-scale fisheries being considered a deficit sector is highly unlikely unless perhaps in cases where the introduction of a new fishing method could justify hiring foreign migrant fishers to train others. Other laws that may potentially affect transboundary migrants are business ownership requirements for foreign nationals, which could apply in the case of foreign fishers or dealers owning and operating a fishing vessel.

In light of existing fisheries, immigration and labor laws that apply to fishing activities and fishers, most small-scale trans-boundary fishers end up in a position where they risk breaking several laws. For example, many East African small-scale fishers do not have passports (pers. observation) and they cross the borders illegally often by sea to avoid border posts. Those that do have passports and cross the border legally are not allowed to work without also having a work and residence permit. Even if these fishers wished to work legally, the procedures that regulate hiring foreign labor are complex and difficult for small-scale fishers or their employers to comply with. The various illegalities in which migrant fishers find themselves mean that they are liable to be harassed and prosecuted by authorities.

In a recently published paper by Crona and Rosendo (2011) a more comprehensive analysis is carried out to evaluate policies and legal documents related to coastal resources management and development. It also examines the extent to which they recognize and integrate fishers' migration in their provisions and explores the possible implications of these legal provisions and policies for efforts to manage fisheries resources in the context of migration. We refer to this paper for a more detailed treatment of the subject.



Fish auction north of Dar es Salaam (Photo: B Crona)

## 10. Recommendations

### 10.1. Policy Messages

The task of managing coastal fisheries, particularly at the local level, is complicated by spatial mobility of fishers across local and national boundaries. The main reason is the inherent unpredictability of influx of fishers to local communities which is a result of poor knowledge of the extent and pattern of these movements. Better monitoring of migrant fishers at landing sites is a prerequisite for improved understanding of fishers' movements, and will allow local management institutions to better anticipate and plan for influx of non-local fishers into their management area. Although this project has taken some preliminary steps in mapping the dynamics of fishers' migrations in the WIO region more comprehensive information is still needed on: which fishing grounds migrants use, the gears used, how these gears are deployed and how this affects targeted fish stocks. This is essential in order to provide further and more informed recommendations on restrictions of migrant fishing operations.

Migrating fishers arriving in coastal communities in all of the countries investigated are perceived to have both beneficial and negative impacts. Such trade-offs need to be considered in any policy recommendations on fishers' migrations.

### 10.2. Recommendations

Despite the preliminary nature of data presented in this brief it is evident that information is lacking in several areas of direct relevance for policy development aimed at dealing with issues of migrating fishers. Below we list a number of pressing issues that deserve the attention of policy and research in the near future to address the issue of fisher's migration and fisheries management.

1. Better monitoring of migrant fishers (both internal and transboundary migrants) at landing sites is a prerequisite for improved understanding of fishers' movements and the effects of such mobility on coastal resources. In Mozambique, this could be done as part of the National Artisanal Fisheries Census undertaken at regular intervals (last two in 2002 and 2007) by IDPPE, by including questions about the origin of fishers, their

movement patterns, including arrival, period and intention of stay, previous destinations and future migration plans.

2. Significant gaps in the information about the status of many coastal and marine resources limits the ability of both local institutions (such as BMUs and similar organizations) and Fisheries Authorities to make informed decisions about the number of fishers, types of gears and catches to allow into any given area.

3. The type of systematically collected information required would include recording of all fishers and crews not members of local community (or local fisheries organizations) at the landing sites, their origin, time of arrival, gears used, species and quantities landed. This could be collected by local organizations in collaboration with, and with the support from, Fisheries Authorities in each country.

4. Collection of such information would constitute a first step towards forming a solid base in which to ground more informed recommendations on how to manage migrant fishing. It would also allow local management institutions (e.g. BMUs, CCPs and Fisheries Department Offices) to better anticipate and plan for influx of non-local fishers into their management area.

5. Given the much contested issues surrounding the use of ring nets by migrants in Kenya, this issue would benefit from a thorough investigation into who is actually involved in such fishing practices. A working group should be convened to address this issue.

6. The invisibility of fishers' mobility in policy means that institutions developed to deal with coastal management at the community level may not have sufficient support from legal and policy documents, and may not be developed or equipped to handle the possible conflicts and difficult trade-offs that need to be addressed as a result of fishers' mobility. This is particularly the case for transboundary migrants.

7. Any policy decision needs to consider the trade-offs between both benefits and negative effects as perceived by members of communities hosting migrant fishers.

8. Migration must be seen a result of socio-economic and ecological dynamics occurring in sending and receiving communities. The management of migratory flows therefore must target both origin and destination of migrants and should be linked to broader policies about poverty reduction and conservation and the sustainable management of coastal and marine ecosystems that support artisanal fisheries.

9. MPAs, together with the development of tourism are resulting in the displacement of small-scale fishers, with migrant fishers worse affected. These initiatives need to better address not only impacts on local fishers, but also on migrants.

10. Without being accompanied by viable livelihood alternatives, the above mentioned initiatives will simply have the effect of displacing fishers and fishing effort into increasingly reduced open-access areas.

11. Currently, co-management bodies are expected to generate their own funding, and fees and levies from migrants are becoming an important source for this end. It is important to encourage debate about the financial sustainability of co-management bodies and how this may affect their resource management decisions.

12. Fisheries management and marine conservation strategies in the region need to take into consideration the impacts of climate change on local communities and its

potential to become a further driver of fishers' migration. Climate-related changes are already impacting on local communities in East Africa through a variety of pathways and multiple drivers, often affecting simultaneously fishing and farming, two activities that underpin livelihoods (see Bunce et al. 2010, Rosendo et al. 2010). Migration may become an even more common livelihood strategy and a potentially adequate one in the context of shifts in the ranges of certain marine species and resource oscillations that are likely to occur as a result of climate change.



Fishers resting in Moa, Tanzania (Photo: B Crona)

## **11. Future research and lessons learned**

This section will start with a brief reflection around the research process and some lessons which can be documented and passed on for future research on migration issues in the region. We then outline some areas which we believe need further investigation, and close with a short summary of some of the areas where we see a potential for this work on migrant fishers to link to other MASMA funded projects.

### **11.1. Lessons learned**

To get a comprehensive understanding of the drivers (push and pull factors) affecting fishers' migration one should ideally study both communities of origin and destination. This is notoriously difficult and a first necessary step is to visit known areas of migrant influx and attempt to map the origins of the migrant fishers arriving to these sites. This is what this project has done.

However, fishers' migration is complex phenomenon and little is known about the dynamics of fishers' movement across the East African region to date. To comprehensively capture these dynamics surveys and monitoring would have to be conducted at regular intervals throughout the year. This would allow for i) a deeper understanding of differences of influx of migrant fishers across seasons and places and ii) if the migrants arriving at different times are of different origins. It would also allow for a quantification of these fluxes over time and space. Fulanda et al (2009) have made a first attempt in this direction, but although their work systematically sampled migrants over time and attempted a first quantification, this type of work would need to be complemented with qualitative exploration of the mechanisms that facilitate this migration, as well as the drivers behind it. It is our hope that this report will provide some of these missing pieces but it must be recognized that without a more comprehensive sampling strategy a representative picture of fishers' migration will not be attainable.

An important lesson learnt through this project is the difficulty in defining who is, and who is not, a migrant fisher. Migration patterns vary tremendously both within and across countries, from a few days to several months or years. This appears to be largely



related to the type of fishing operations conducted (see section 4) but this still needs more thorough study. This difficulty of determining who is a migrant naturally affects the sampling frame. In this project we decided to sample migrant fishers according to how they defined themselves and if they were thought of as migrants by the host communities. This was an intentional strategy to capture as many different migrant types and migration patterns as possible, given the dearth of information on the subject in the region. This may of course affect the possible comparisons that can be made across the sample. Depending on the research question future research on fishers' migration may therefore benefit from choosing to focus on some specific types of migration patterns (and migrant fishers) to understand the specific drivers and mechanisms behind their migration in more detail.

Conflict is something that is tightly linked to the arrival of migrant fishers in some places. This had also caused fishers' migration to become a 'hot' political topic in some of the countries of investigation. This created several interesting and challenging issue that field work as to contend with. First, due to insecurity around current policy decisions from e.g. the Fisheries Department in one of the countries, migrants in some of the communities where conflicts had been prevalent were afraid (and sometimes even prevented by local authorities) to speak to us in the field. Naturally this can cause bias in the sample and the data collected. Second, the turbulence in policy surrounding migrant fishers provided a challenge in analysing how migrant fishers affect and interact with current institutional structures. However, at the same time, is also provided an opportunity to work with government agencies on a topical issue and feed some of the on-going findings into policy relevant documents and processes.

## **11.2. Future research and links to other MASMA projects**

Throughout this report we have highlighted issues which would benefit from further investigation. The aim here is not to regurgitate these but to link emerging findings on migrant fishers to some of the on-going projects funded by MASMA. Our aim is to point out specific linkages between these projects to highlight where additional funding could benefit the integration of findings from multiple projects.

We have identified four current projects which we believe link to research ion migrant fishers in various ways. These links are detailed below:

*Project title: Incorporating reef fish spawning aggregations into optimal designs for no-take fishery reserves.*

The specific objectives of this project are to:

- (1) Define the spatio-temporal dynamics of spawning behaviour of key fishery species that form spawning aggregations;
- (2) Determine management requirements for spawning aggregations with a focus on optimal designs for no-take fishery reserves and assessing the role of MPAs;

(3) Raise awareness and develop policy advice relating to the management of reef fish spawning aggregations at national, regional and global levels.

Findings from this type of research could potentially be integrated with work on fishers' migration to understand the degree to which fishers' migrations are linked to knowledge and targeting of fish spawning aggregations.

*Project title: Global Markets and the Livelihoods of Coastal Communities in the WIO Countries: Implications for Sustainable Coastal Management*

The purpose of this project is to understand and document the changing structures and processes of coastal resource use and management as a result of global markets in Tanzania, Kenya and Mauritius. Specifically the project examines the demands that the global market exerts on the coastal resources, users and managers of the resources and their implications on sustainable coastal management. Likewise to document the ways in which the aspects of global markets have been impacting the coastal area, its people and their livelihood

We see a good opportunity for linking findings from these two projects to better understand the link between markets, market actors (such as traders) and the migration of fishermen. As has been seen in this report, small-scale traders play an increasingly important role in facilitating fishers' migration in several countries. Understanding this better could help improve governance of coastal resources in the WIO region.

*Project title: The spatial behaviour of artisanal fishers: Implications for fisheries management and development.*

This project aims to understand the spatial behaviour of fishers albeit at a smaller scale. This understanding of how fishing behaviour is linked to habitats and other spatial aspects could be linked to how migrant fishers choose their areas of destination and their fishing behaviour once they arrive in an area to fish.

*Project title: An economic valuation of coastal and marine ecosystem services in the WIO to identify specific beneficiaries, and the role of marine protected areas in ensuring that these services are sustained*

MPAs promise to protect certain parts of the seascape for the production of a range of marine ecosystem services. However, at the same time they can displace fishers causing them to seek fishing opportunities elsewhere. This can lead to both larger-scale and smaller-scale migrations along the coast and as such is linked to a study of fishers' migration. Understanding the interplay between the establishment of MPAs, the beneficiaries as well as the losers of such arrangement, and the possible role of MPAs as drivers of migration is a topic which is poorly understood.

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A



B

A. Kenya field team (left to right: Beatrice Crona, Tabitha Muriuki, Innocent Wanyonyi, Abdul Rashid, Stella Wafuma). B. Tanzania field team (left to right: Abdul Rashid, Simeon Mesaki, Mzee Homari's son (from Moa), missing from picture is Justin Bamanyisa).

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## APPENDIX A. List of migrant destinations

Table A1: List of all destinations cited by migrants surveyed along the Kenyan, Mozambican and Tanzanian coasts. KE represents destination in Kenya, MZ are destinations in Mozambique while TZ are destinations in Tanzania

Study Country	Places of Migrant Destination	# Citations
Kenya	KE-Malindi	13
	TZ-Dar es Salaam	13
	TZ-Moa	12
	KE-Kipini	11
	KE-Vanga	9
	KE-Watamu	9
	TZ-Unguja	7
	KE-Gazi	6
	KE-Kilifi	6
	KE-Mayungu	5
	KE-Shimoni	5
	TZ-Mafia	5
	TZ-Malindi	5
	TZ-Tanga	4
	KE-Kinyaole	3
	KE-Lamu	3
	KE-Ngomani	3
	TZ-Buyuni	3
	TZ-Kunduchi	3
	TZ-Mazizini	3
	TZ-Mbweni	3
	TZ-Msuka	3
	TZ-Pemba	3
	TZ-Tanzania	3
	TZ-Tumbe	3
	KE-Funzi	2
	KE-Kizingitini	2
	KE-Mnarani	2
	KE-Msambweni	2
	KE-Tenewi	2
	TZ-Chake-Chake	2
	TZ-Kigamboni	2
	TZ-Kiuyu	2
	TZ-Kwale	2
TZ-Myanyani	2	
TZ-Songosongo	2	
TZ-Ununio	2	

	TZ-Wesha	2
	TZ-Wete	2
	KE-Bodo	1
	KE-Bofa	1
	KE-Chale	1
	KE-Diani	1
	KE-Jasini	1
	KE-Jimbo	1
	KE-Kiunga	1
	KE-Kiwayu	1
	KE-Majoreni	1
	KE-Mkokoni	1
	KE-Mtwapa	1
	KE-Shaleshale	1
	KE-Uyombo	1
	KE-Ziwayuu	1
	MZ-Mozambique	1
	MZ-Pemba	1
	SOM-Ndoa	1
	TZ-Bagamoyo	1
	TZ-Boma	1
	TZ-Bububu	1
	TZ-Bweni	1
	TZ-Kaole	1
	TZ-Kichalikani	1
	TZ-Kigombe	1
	TZ-Kilwa	1
	TZ-Kinondoni	1
	TZ-Kipumbwi	1
	TZ-Kitame	1
	TZ-Klindoni	1
	TZ-Mizingani	1
	TZ-Mkokotoni	1
	TZ-Msasani	1
	TZ-Mtwara	1
	TZ-Mwarongo	1
	TZ-Pangani	1
	TZ-Ushongo	1
Mozambique	MZ-Pangane	7
	MZ-Mocimboa da Praia	6
	MZ-Palma	6
	MZ-Quifuqui	6
	TZ-Pemba	6
	MZ-Ilha de Mocambique	5

	MZ-Quirimba	5
	MZ-Mefuvo	4
	MZ-Quissanga	4
	MZ-Rongue	4
	MZ-Tambuzi	4
	MZ-Angoche	2
	MZ-Ibo	2
	MZ-Matemo	2
	MZ-Mecufi	2
	MZ-Michanga	2
	MZ-Mtundo	2
	MZ-Nacala	2
	MZ-Quiranhune	2
	KE-Vanga	1
	MZ-Capaceira	1
	MZ-Kivure	1
	MZ-Macaloe	1
	MZ-Macomia	1
	MZ-Mecula	1
	MZ-Mombuzi	1
	MZ-Namatinga	1
	MZ-Nhondje	1
	MZ-Nsangue	1
	MZ-Olumbi	1
	MZ-Quilaleia	1
	MZ-Quionga	1
	MZ-Quirambo	1
	MZ-Quissimadjolo	1
	MZ-Quissive	1
	MZ-Quiterajo	1
	MZ-Sirica	1
	MZ-Sitio	1
	MZ-Tindi	1
	MZ-Vamize	1
	TZ-Kilwa	1
	TZ-Mafia	1
	TZ-Tanzania	1
Tanzania	TZ-Bagamoyo	9
	KE-Shimoni	6
	TZ-Tanga	5
	KE-Gazi	4
	KE-Vanga	4
	TZ-Dar es Salaam	3
	TZ-Kwale	3

TZ-Malindi	3
TZ-Mbweni	3
TZ-Unguja	3
KE-Mayungu	2
KE-Watamu	2
TZ-Bweni	2
TZ-Ferry	2
TZ-Kigamboni	2
TZ-Kunduchi	2
TZ-Mafia	2
TZ-Mwarongo	2
TZ-Nyororo	2
KE-Funzi	1
KE-Jimbo	1
KE-Kenya	1
KE-Malindi	1
KE-Mombasa	1
KE-Shaleshale	1
KE-Takaungu	1
TZ-Buyuni	1
TZ-Juani	1
TZ-Kastumu	1
TZ-Kawe	1
TZ-Kichalikani	1
TZ-Kilwa	1
TZ-Kisiju	1
TZ-Klindoni	1
TZ-Mkumbuu	1
TZ-Mlingotini	1
TZ-Moa	1
TZ-Pangani	1
TZ-Sahare	1
TZ-Songosongo	1

# APPENDIX B. Survey instruments for migrant and local fishers.

## APPENDIX B1. Local fishers

### Survey instrument MASMA WIO fishers migration – Local Fishers

#### Confidentiality Statement

(must be read to respondent before interview)

We are asking you to participate in this study to help us understand how migration of fishers affect local communities here in [insert country]. Your participation involves answering questions about some of your work, your perception of important issues relating to migration to your community, and some background information. We will not ask for your name, or any other information that can be traced to your identity. All your responses will be anonymous. Your involvement should take approximately 30 minutes.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there is no penalty. The results of the study may be published, but no information will ever be linked to your identity in any way.

Although there may be no direct benefit to you, the possible benefit of your participation is an improved understanding of the issues which face local communities receiving migrant fishers.

*Note: numbers in ( ) correspond to numbering of migrants questionnaire*

Interview Code No.....

Date..... Location /Study Site.....  
Country.....  
Data collector.....  
Notes on interview .....  
Notes on the respondent.....

1. Nationality.....
2. What is your place of origin?
  - 2a. Country.....
  - 2b. Village/location.....
3. What is your ethnicity.....
4. Are you a citizen of [insert country under study]?    yes /    no

#### **SECTION I: Fishing operations**



**Fishing tradition**

5. When did you start fishing? ..... year or age

6. Did your father/mother fish too? yes / no

7 (22). What is the gear you use?

7a. Gear	8b. Number of gears	8c. Size (hook, net length, net depth, mesh size)
Hand line (reef)		
Trolling		
Long line		
Etc		

7 (22)d. Which is your main gear? (*NOTE: indicate the main gear in table above*)

8 (23). How many hours IN TOTAL (from when you leave to when you come back) do you spend fishing on a 'normal' day?  
 .....

9(24). In a month, how many days do you normally NOT spend fishing? (*prompt to find out if answer includes holidays, if yes ask them to not include holidays*)

10(25). Do you use a boat to fish? yes / no **If no, go to Q 16**

11 (26). How many boats used in each/your fishing unit? .....

If you use a boat:

12(27)a. What type of boat/vessel? .....12(27)b. Length (metres).....

(*NOTE: make sure the length is realistic*)

13(28)a. Does it have an engine? yes / no 13(28)b. Outboard / Inboard

13(28)c. Horse Power of engine.....

14(29). What navigation and communication equipment do you have? (*prompt for each alternative*)

- ..... Compass
- ..... marine charts
- ..... Radio for communication (VHF)
- ..... GPS
- ..... Sounder/Fish finder
- ..... Other, specify .....

15(30). Who owns the boat(s)?

Boat 1:

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

**Who owns the engine?**

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

**Who owns the fishing gear?**

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

**Boat 2:**

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

**Who owns the engine?**

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

**Who owns the fishing gear?**

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

***NOTE: If there are more than 2 boats in the unit, do the same for additional boats***

16(31)a. Do you own any of the following:

(...) a mobile phone

(...) sim card

(...) neither

***NOTE: if respondent describes anything about their mobile phone use, please write it down***

17. Apart from local fishers, who fishes here? (probe with examples ‘for example, fishers coming from other parts of the coast or from other countries’)

.....

18(32)a. How many fishers are in the crew of your fishing unit?

.....

18(32)b. How many of them are migrant fishers?.....

19(33). If possible, indicate the number of MIGRANT crew members of each age, working on your boat.

Below 18	19-29	30-49	> 50

20(34). Can you tell me how much you catch on:

20(34)a. A day with a good catch .....(indicate unit)

20(34)b. A day with a poor catch .....(indicate unit)

20(34)c. A day with a 'normal' catch.....(indicate unit)

21(35). Which species/types of fish do you ACTUALLY catch the most? (list the top 5 most abundant)

.....  
.....  
.....  
.....  
.....

22(37). What is the substrate/environment in the area(s) that you fish?  
mangrove / seagrass / mud/sand flat / coral reef / rock / open water / other (*specify*).....  
(multiple options allowed)

23(38). Compared to 5 yrs ago, has the TOTAL number of fishers in [insert name of study site]:

increased / stayed the same / decreased / don't know

24(39). Compared to 5 yrs ago, has the number of MIGRANT fishers in [insert name of study site]:

increased / stayed the same / decreased / don't know

25(40). Are you predominantly fishing in the same grounds as MIGRANT fishers?

always / sometimes / rarely / never / don't know

**Markets** (*ask about the main catch/ target species*)

26(43). Do you process your catch? yes / no

27(44). If yes, how do you process it?

dry / smoke / salt / smoke / cook / freeze / other (*specify*) .....

28(45). Where do you sell your catch?.....

29(46). Who do you sell your catch to?

a predetermined middleman / any middleman at the beach / at a beach auction / other (*specify*) .....

30(47)a. If to a predetermined middleman, do you have an agreement with this middleman?

yes / no

30(47)b. If yes what does it look like? (*Prompt all alternatives- multiple options allowed*)

(...) I/we must sell to him/her

(...) He/she guarantees to buy our catch

(...) He/she buys the catch at a fixed price

(...) Buyer provides money for fuel/bait

(...) Buyer owns boat/gear/engine etc.

(...) Other (explain) .....

31(48). If selling to a middleman, do which market does he/she sell it to?  
 .....

**SECTION II: Assessing impact in host communities**

**Legislation and Policy**

32(60). Are you aware of any organizations involved in making decisions about your fishing activities (i.e. when, where and who can fish) in [insert name of study site]? yes / no

33(61). If yes, list them:

33(61). Organization/Body	34(62) Participate	How? passive (P) / active (A)
.....	yes / no	.....
.....	yes / no	.....
.....	yes / no	.....
.....	yes / no	.....

34(62). If yes, for **each** organisation/body listed above, indicate **if** you participate in it and, if so, **how**, in the table above.

**Note: If they participate, give the respondents the following options to choose from**

**Passive** = I go to meetings but I just listen and I rarely speak

**Active** = I go to meetings and I often speak and actively take part in the discussion

35(63). If you do not currently participate, in which org would you like to participate? How?

Organization/Body	How
.....	.....
.....	.....
.....	.....
.....	.....

36(64). Are you aware of any fishing regulations in [insert name of study site]? yes / no

37(65). If yes, which regulations are you aware of?

Regulation (predef cat when entered into DB)	Who is responsible for monitoring and enforcing this regulation?	To what extent do MIGRANT fishers here comply with this regulation? (1) no one complies; (2) some people comply; (3) almost everyone	To what extent do LOCAL fishers here comply with this regulation? (1) no one complies; (2) some people comply; (3) almost everyone complies	Do you agree with it this regulation? (yes, no, DK)

		complies		
		1 2 3	1 2 3	
		1 2 3	1 2 3	
		1 2 3	1 2 3	

38(66)a. Are you aware of any customs/traditions/taboos here in your community that relate to fishing activities in this area? yes / no

38(66)b. If yes, briefly describe them.....

.....

**Attitudes towards migrant fishers**

39(76)a. In your opinion, is it good or bad to have migrant fishers visiting your area/village? (probe for what is good and bad) Please explain why.

Good	Bad
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

39b. So, given the good and bad things you just mentioned, would you say that migrants are good / bad / have no impact for the you community?

40(67)a. Do you need permission to fish where you are fishing? yes / no / don't know

40(67)b. If yes, how do you get it?.....

41(68)a. Have you personally been involved in any conflict with migrant fishers? yes / no

41(68)b. If yes, what were they about? (explain)

.....

41(68)c. What happened?

.....

42(69)a. . Do you think there are/have been any conflicts between migrant fishers and the local community, now or in the past?     yes / no / don't know

42(69)b. If Yes, what was the issue?.....

42(69)c. What happened?

.....  
.....

### **Perceptions of resources**

43(70). Compared to 5 years ago, do you think there is:

much more / more / less / much less / about the same     fish in the sea?

**Only circle [don't know] if respondent cannot think of an answer**

**NOTE: if respondent catches something other than fish, ensure that the question is about what he/she catches.**

44(71). Can you explain why?.....

.....

45(72). Has there been any change in the size of the fish caught?     yes / no

46(73). If yes, indicate whether the size of fish caught now is generally: larger / smaller

47(74). What are the main threats to the future of fish in the sea, in this area (list max 5)

.....  
.....  
.....  
.....  
.....

### **SECTION III: Social and economic issues facing local fishers (control for migrant survey)**

48(79). In the past year, have you had any health issues?     yes / no

49(80). If yes, what caused these? (*do not probe respondent but tick most appropriate option*):

Malaria: (    ); Cholera/Dysentery: (    ); Typhoid: (    ); Fishing accidents (\_\_\_); Others  
accident (\_\_\_) *specify* ..... HIV/AIDS: (\_\_\_); Undefined disease (    );

Others(\_\_\_)*specify* .....

50(81). How did you deal with

it?.....

51. Do you have access to any of the following items here in [insert name of study site]?  
(*tick all that apply*)

	Fresh water supply		Electricity
	Resident doctor/nurse		Telephone
	Functioning dispensaries		Internet
	Hospital		Radio
	Food/shops		TV
	Facilities for repair of boats		Newspaper
	Facilities for repair of gear		Banking services
	Ice plant		Toilets/latrines
	Freezer		
	Places of worship (church, temple, mosque)		
	Schools for your children		

52(83)a. Do you have access to any formal or informal sources of credit in the study area?

yes / no

52(83)b. If yes, what is the source? .....

**SECTION IV: Demographics**

**Personal information of respondent**

53(84). Gender: Male(.....) Female(.....)

54(85). Religion: .....

55(86). How old are you?.....

56(87). Other than fishing, what sources of income do you have? (*list in order of importance*)

.....  
 .....  
 .....

**Household/individual wealth**

57(88). I am now going to list a number of different items which relate to the household, the house and other things. All you have to do is indicate whether you own the item or not. (*Indicate ownership by ticking the appropriate cell in the table*)

Household items & facilities.

Radio/cassette player	Piped water	TV	VCR/DVD
Refrigerator	Electric fan	Satellite dish	

I am now going to list a number things that relate to your house and transport. Again, all you have to do is indicate which alternative best describes your assets or living arrangements.

58(89). Do you power your house? yes / no

If yes, how?

Car battery	Kerosene wick	Candle	Light bulb
Generator	Solar panel	Hurricane lamp	

59(90). Do you own a vehicle of any kind?

Bicycle	Motorcycle	Car	other ( <i>specify</i> )
---------	------------	-----	--------------------------

60(91). How do you cook food in the house?

Firewood	Charcoal	Kerosene	Gas/electric	other ( <i>specify</i> )
----------	----------	----------	--------------	--------------------------

62(92). What is the roof material of your house?

Thatch (makuti)	Metal	Tile	other ( <i>specify</i> )
-----------------	-------	------	--------------------------

63(93). What is the floor material of your house?

Dirt/soil	Bamboo/palm	Plank Wood	Cement	Finished (tiles, etc.)
-----------	-------------	------------	--------	------------------------

64(94). What is the wall material of your house?

Bamboo / thatch	Wood (plank)	Stone block	Mud	Cement	Other( <i>specify</i> )
-----------------	--------------	-------------	-----	--------	-------------------------

**Household size and structure**

65(95). No. of children below 18 years.....

66(96). No. of children aged 19 years and above .....

**Marital Status**

67(97). Single (.....) Married (.....) Separated (.....) Divorced (.....) Widowed (...) Other (*specify*).....

68(98). If married, No. of spouses .....

69(99)a. Where does your spouse(s) reside?

69(99)b. What is each spouse's occupation?

(fill location and occupation for each spouse in the table)

69(99)a. Residence	69(99)b. Occupation

**Level of Education**



70(101). What is your highest level of education?

(1) Never gone to school (.....) (2) Primary (.....) (3) Secondary (.....) (4) University (.....) (5) Other  
(please specify e.g. madrasa).....

**AFTER THE INTERVIEW**

**RELIABILITY NOTES For enumerator only**

*Please indicate to what degree you feel the respondent was reliable in answering the survey:*

(....) very reliable (....) moderately reliable (....) not very reliable

*If you feel answers were unreliable, please explain why below and, if possible, explain to which questions you think the answers given are particularly unreliable*

.....  
.....  
.....  
.....  
.....  
.....

**Survey instrument MASMA WIO fishers migration – Migrant Fishers**

**Confidentiality Statement**

**(must be read to respondent before interview)**

We are asking you to participate in this study to help us understand the issues of importance to migrant fishers. Your participation involves answering questions about routes of migration, your perception of important issues relating to your migration, and some background information. We will not ask for your name, or any other information that can be traced to your identity. All your responses will be anonymous. Your involvement should take approximately 45 minutes.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there is no penalty. The results of the study may be published, but no information will ever be linked to your identity in any way.

Although there may be no direct benefit to you, the possible benefit of your participation is an improved understanding of the issues which face migrant fishers and their livelihoods.

Interview Code No.....

Date..... Location /Study Site.....  
Country.....  
Data collector.....  
Notes on interview .....  
Notes on the respondent.....

1. Nationality.....
2. What is your place of origin?  
2a. Country..... 2b. Village/location.....

**Note: Prompt to make sure this is his/her current home base**

3. What is your ethnicity.....
4. Are you a citizen of [insert country under study]? yes / no

**SECTION I: Factors driving migration (motives/causes):**

**Fishing tradition**

5. When did you start fishing? ..... year or age
6. Did your father/mother fish too? yes / no
7. Did your father /mother also migrate? yes / no

8. Did your grand parents also migrate? yes / no

9. Why do you migrate as opposed to staying in your home community?

(list all reasons separately)

.....  
.....  
.....  
.....  
.....

10. Can you give me an estimate of the proportion of the fishers in your home community who migrate? (let the respondent answer freely and choose the most appropriate alternative below – either in words or %)

**Note: do not give Don't know(DK) as an option until the respondent fails to come up with anything**

(1) no one else (2) less than half (3) half (4) more than half (5) almost everyone (6) Don't know

(1) 0 % (2) 1- 40% (3) around 50% (4) between 55-90% (5) >90% (6) DK

11a. Do you expect to earn more money by fishing in [insert name of study site] than in your home area? yes / no

11b. Why? .....  
.....

**SECTION II: Migratory patterns**

12. Can you please list any other destinations you have migrated to for fishing in the last 5 years:

.....  
.....  
.....  
.....

13. Is this your first time in [insert name of study site]? yes / no

**If yes, go to Q 14**

**If no, go to Q 15**

14. If Yes:

14a. How long have you been here? ..... days / months / years

14b. How much longer do you intend to stay? ..... days / months / years

14c. Do you plan to return to [insert name of study site] in the future? yes / no

14d. If yes, when? .....

14e. Why did you come here during this specific time of the year?.....

.....

15. If No:

15a. When did you first come here to fish?.....

15b. How long have you been here on this occasion? ..... days / months / years

15c. For how long do you normally stay? ..... days / months / years

15d. How often do you come? .....

15e. During what time of the year do you normally come here? (indicate season or month).....

15f. Why? .....

16. How do you decide where to go? (*Probe to elicit the factors that affect the decision*)

17. How did you find out about opportunities in [insert name of study site]? (*Probe for source(s) of information*).....

18. How do you decide when to go?.....

19. How did you get from your home to [insert name of study site]? (*Probe for route and means of transport*).....

20. Do you normally stop at other fishing grounds on your way to and/or from coming to [insert name of study site]?    yes / no

***If yes, go to Q21***

***If no, go to Q22***

21. If yes, list places in table below:

21a. Name of fishing ground	21b. Coastal reference (e.g. village, cape etc.)	21c. Main type of fish	21d. Main gear used	21e. How long do you normally stay?	21f. To/From/Both T/F/B

22. What is the gear you use when fishing in [insert name of study site]?

22a. Gear	22b. Number of gears	22c. Size and dimension (hook, net length, net depth, mesh size)	22d. Use at home?	22e. Main gear?
Hand line (reef)				
Trolling				
Long line				
Etc				

22e. Which is your main gear? (**NOTE: indicate the main gear in table above**)

23. How many hours IN TOTAL (from when you leave to when you come back) do you spend fishing on a 'normal' day in [insert name of study site]?

.....

24. In a month, how many days do you normally NOT spend fishing in [insert name of study site]? (*prompt to find out if answer includes holidays, if yes ask them to not include holidays*)

25. Do you use a boat to fish in [insert name of study site]? yes / no **If no, go to Q 31**

26. How many boats are used in each/your fishing unit? .....

If you use a boat:

27a. What type of boat/vessel? ..... 27b. length (metres).....

(**NOTE: make sure the length is realistic**)

28a. Does it have an engine? yes / no 28b. Outboard / Inboard

28c. Horse Power of engine.....

29. What navigation and communication equipment do you have onboard? (*prompt for each alternative*)

..... Compass

..... Marine charts

..... Radio for communication (VHF)

..... GPS

..... Sounder/Fish finder

..... Other, specify .....

30. Who owns the boat(s)?

**Boat 1:**

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

Who owns the engine?

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

Who owns the fishing gear?

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

**Boat 2:**

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

Who owns the engine?

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

Who owns the fishing gear?

me / captain only / captain and crew / captain in partnership with relative / patron (but not fish trader) / fish trader / other (please specify) .....

**NOTE: If there are more than 2 boats in the unit, do the same for additional boats**

31a. Do you own any of the following:

(....) a mobile phone

(....) sim card

(....) neither

**NOTE: if respondent describes anything about their mobile phone use, please write it down**

.....

31b. If yes, does it help you to be a migrant fisher? Please explain how.

.....

.....

32a. How many fishers are in the crew of your fishing unit? .....

32b. How many of them are migrant fishers? .....

33. If possible, indicate the number of MIGRANT crew members of each age, working on your boat.

below 18	19-29	30-49	> 50

34. When you fish in this season in [insert name of study site], please indicate how much you catch on:

34a. A day with a good catch .....(indicate units) (Notes field).....

34b. A day with a poor catch .....(indicate unit) (Notes field).....

34c. A day with a 'normal' catch.....(indicate unit) (Notes field).....

35. When fish in this season in [insert name of study site], which species/types of fish do you ACTUALLY catch the most? (list the top 5 most abundant)

.....  
 .....  
 .....  
 .....  
 .....

**NOTE to enumerator: This question tries to understand if migrants catch the species they actually came for.**

36. Which is the specie(s)/types of fish you MOSTLY HOPE to catch in [insert name of study site], with the gear you are using? (list all)

.....  
 .....  
 .....  
 .....

37. In [insert name of study site], what is the substrate/environment in the area(s) that you fish?

mangrove / seagrass / mud/sand flat / coral reef / rock / open water / other (*specify*).....  
 (*multiple options allowed*)

38. Compared to 5 yrs ago (or since you started coming here), has the TOTAL number of fishers in [insert name of study site]:

increased / stayed the same / decreased / don't know

39. Compared to 5 yrs ago (or since you started coming here), has the number of MIGRANT fishers in [insert name of study site]:

increased / stayed the same / decreased / don't know

40. Are you predominantly fishing in the same grounds as local fishers?

always / sometimes / rarely / never / don't know

41. Do you ever consult anyone to improve your fishing in [insert name of study site]?

yes / no

42. If yes, please indicate occupation, relation and if person is from [insert name of study site].

Occupation	Relation (friend, father, etc)	From [study site]? (y/n)	Notes field
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

**Markets** (ask about their main catch/target species)

43. Do you process your catch? yes / no

44. If yes, how do you process it?

dry / smoke / salt / smoke / cook / freeze / other (specify) .....

45. Where do you sell your catch?.....

46. Who do you sell your catch to?

a predetermined middleman / any middleman at the beach / at a beach auction / other (specify) .....

47a. If to a predetermined middleman, do you have an agreement with this middleman?

yes / no

47b. If yes what does it look like? (Prompt all alternatives- multiple options allowed)

(....) I/we must sell to him/her

(....) He/she guarantees to buy our catch

(....) He/she buys the catch at a fixed price

(....) Buyer provides money for fuel/bait

(....) Buyer owns boat/gear/engine etc.

(....) Other (explain) .....

48. If selling to a middleman, to which market does he/she sell it to?

.....

49. On what will you spend the money that your earn in [insert name of study site]? (list all uses separately)

.....

.....

.....

**SECTION III: Factors influencing destination choice (migrant selectivity)**

50. Why do you choose to come to [insert name of study site], and not some other location? (list all reasons separately)

.....

.....

.....

.....

.....

51. Which of this is the most important reason? (Indicate above with an X)

52. Did you know anyone in [insert name of study site] before you came here the first time? yes / no



53. If Yes, what relation is he/she/they to you? (e.g. father, friend, captain, crew member, etc.)

*(list all)*

.....  
 .....  
 .....  
 .....

54. Did any of the people you just mentioned assist you to come here? yes / no

55. If yes, how did he/she/they assist you? (**MAKE SURE YOU SPECIFY WHO ASSISTED**)

.....  
 .....  
 .....

56. Did you come to [insert name of study site] alone or with others?  
 alone / with others

57. If you came with others, how many? .....  
 and who were they? (*tick all that apply*)

- father
- mother
- son(s), daughter(s)
- brother(s) / sister(s)
- friend(s)
- captain
- crew member
- other (*specify*).....

58. Now, please try to imagine that you needed economic support /assistance with money. Who in [insert name of study site] would you go to if this happened?  
*(Indicate relation and if person is local or not)*

Relation	Are they from this community?
.....	yes / no
.....	yes / no
.....	yes / no
.....	yes / no
.....	yes / no

59. Now, please try to imagine that you had a personal problem of any kind in [insert name of study site]. Who in this place would you go to discuss this with? (*indicate relation and if person is local or not*)

Relation	Are they from this community?
.....	.....

.....	yes / no
.....	yes / no
.....	yes / no
.....	yes / no
.....	yes / no

**SECTION IV: Assessing impact in host communities**

**Legislation and Policy**

60. Are you aware of any organizations involved in making decisions about your fishing activities (i.e. when, where and who can fish) in [insert name of study site]? yes / no

61.If yes, list them:

61. Organization/Body	62. Participate	How? passive (P) / active (A)
.....	yes / no	.....
.....	yes / no	.....
.....	yes / no	.....
.....	yes / no	.....

62. If yes, for **each** organisation/body listed above, indicate **if** you participate in it and, if so, **how**, in the table above.

*Note: If they participate, give the respondents the following options to choose from*

**Passive** = I go to meetings but I just listen and I rarely speak

**Active** = I go to meetings and I often speak and actively take part in the discussion

63. If you do not currently participate, in which org would you like to participate? How?

Organization/Body	How
.....	.....
.....	.....
.....	.....
.....	.....

64. Are you aware of any fishing regulations in [insert name of study site]? yes / no

65. If yes, which regulations are you aware of?

Regulation (predef cat when entered into DB)	Who is responsible for monitoring and enforcing this regulation?	To what extent do MIGRANT fishers here comply with this regulation? (1) no one complies; (2) some people comply; (3) almost	To what extent do LOCAL fishers here comply with this regulation? (1) no one complies; (2) some people comply; (3) almost everyone complies	Do you agree with it this regulation? (yes, no, DK)

		everyone complies		
		1 2 3	1 2 3	
		1 2 3	1 2 3	
		1 2 3	1 2 3	

66a. Are you aware of any customs/traditions/taboos in the local community that relate to fishing activities in this area? yes / no

66b. If yes, briefly describe them.....  
 .....

67a. Do you need permission to fish where you are fishing here? yes / no / don't know

67b. If yes, how do you get it?.....

68a. Have you personally been involved in any conflict with local fishers or other locals?  
 yes / no

68b. If yes, what were they about? (*explain*)  
 .....  
 .....

68c. What happened?  
 .....  
 .....

69a. Do you think there are any conflicts between migrant fishers and the local community? yes / no / don't know

69b. If Yes, what was/is the issue?.....

69c. What happened?  
 .....  
 .....

**Perceptions of resources**

70. Compared to 5 years ago, or since you have been coming to [insert name of study site] do you think there is: much more / more / less / much less / about the same fish in the sea?  
*Only circle [don't know] if respondent cannot think of an answer*

*NOTE: if respondent catches something other than fish, ensure that the question is about what he/she catches.*

71. Can you explain why?.....  
 .....

72. Has there been any change in the size of the fish caught? yes / no

73. If yes, indicate whether the size of fish caught now is generally: larger / smaller

74. What are the main threats to the future of fish in the sea, in this area (list max 5)

.....  
 .....  
 .....  
 .....  
 .....

**SECTION V: Social and economic issues facing the migrants**

75. Have you had any problems or misfortunes at all during your stay in [insert name of study site]? (*explain*)

.....  
 .....  
 .....

76. In your opinion, what are the good and bad things about being away from home on these migration trips? Please explain why. (*probe for what is good and bad*)

Good	Bad
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

77. During your stay in [insert name of study site] how do you access:

77a. Water? .....

77b. Food? .....

77. Shelter? .....

78. Have you ever had any difficulties accessing any of these? (*explain*)

.....

79. Have you ever had any health issues during a migration (i.e. when fishing away from home)? yes / no

80. If Yes, what was the health issue related to? (*do not probe respondent but tick most appropriate option(s)*):

Malaria: (\_\_\_); Cholera/Dysentery: (\_\_\_); Typhoid: (\_\_\_); Fishing accidents (\_\_\_);  
 Others accident (\_\_\_) *specify* .....; HIV/AIDS: (\_\_\_); Undefined disease ( \_\_\_ );  
 Other ( ) *specify* .....

81. How did you deal with it? .....

82. While you are based in [insert name of study site], which of the following facilities do you have access to? (*tick all that apply*)

	Fresh water supply		Electricity
	Resident doctor/nurse		Telephone
	Functioning dispensaries		Internet
	Hospital		Radio
	Food/shops		TV
	Facilities for repair of boats		Newspaper
	Facilities for repair of gear		Banking services
	Ice plant		Toilets/latrines
	Freezer		
	Places of worship (church, temple, mosque)		
	Schools for your children		

83a. Do you have access to any formal or informal sources of credit in the study area?  
yes / no

83b. If yes, what is the source? .....

**SECTION VI: Demographics**

**Personal information of respondent**

84. Gender: Male(.....) Female(.....)

85. Religion: .....

86. How old are you?.....

87. Other than fishing, what sources of income do you have? (*list in order of importance*)

.....  
.....  
.....

**Household/individual wealth**

88. I am now going to list a number of different items which relate to the household, the house and other things. All you have to do is indicate whether you own the item or not. (*Indicate ownership by ticking the appropriate cell in the table*)

Household items & facilities.

Radio/cassette player	Piped water	TV	VCR/DVD
Refrigerator	Electric fan	Satellite dish	

I am now going to list a number things that relate to your house and transport. Again, all you have to do is indicate which alternative best describes your assets or living arrangements in your home community (NOT in study site).

89. Do you power your house? yes / no

If yes, how?

Car battery	Kerosene wick	Candle	Light bulb
Generator	Solar panel	Hurricane lamp	

90. Do you own a vehicle of any kind?

Bicycle	Motorcycle	Car	other ( <i>specify</i> )
---------	------------	-----	--------------------------

91. How do you cook food in the house in your home community?

Firewood	Charcoal	Kerosene	Gas/electric	other ( <i>specify</i> )
----------	----------	----------	--------------	--------------------------

92. In your home community, what is the roof material of your house?

Thatch (makuti)	Metal	Tile	other ( <i>specify</i> )
-----------------	-------	------	--------------------------

93. In your home community, what is the floor material of your house?

Dirt/soil	Bamboo/palm	Plank Wood	Cement	Finished (tiles, etc.)
-----------	-------------	------------	--------	------------------------

94. In your home community, what is the wall material of your house?

Bamboo / thatch	Wood (plank)	Stone block	Mud	Cement	Other ( <i>specify</i> )
-----------------	--------------	-------------	-----	--------	--------------------------

**Household size and structure**

95. No. of children below 18 years.....

96. No. of children aged 19 years and above .....

**Marital Status**

97. Single (.....) Married (.....) Separated (.....) Divorced (.....) Widowed (.....) Other (*specify*).....

98. If married, No. of spouses .....

99a. Where does your spouse(s) reside?

99b. What is each spouse's occupation?

(fill location and occupation for each spouse in the table)

99a. Residence	99b. Occupation


100. Do you speak the local language of [insert name of study site]? yes / no

**Level of Education**

101. What is your highest level of education?

(1) Never gone to school (.....) (2) Primary (.....) (3) Secondary (.....) (4) University (.....) (5) Other  
*(please specify e.g. madrasa)*.....

102a. And finally....

Which place do you consider your home? .....  
 my place of origin  
 this place  
 both  
 some other place (*specify*).....

102b. Why?.....

**AFTER THE INTERVIEW**

**RELIABILITY NOTES For enumerator only**

*Please indicate to what degree you feel the respondent was reliable in answering the survey:*

(....) very reliable (....) moderately reliable (....) not very reliable

*If you feel answers were unreliable, please explain why below and, if possible, explain to which questions you think the answers given are particularly unreliable*

.....  
 .....  
 .....  
 .....  
 .....